# Conserving the Health of Colorado's Children

# THIS BOOK

BELONGS TO

School District Number 11, Colorado Springs, El Paso County, Colorado

Bristol School

Date _____ No. _____

## TO THE PUPIL

1. This book must be kept neat and clean and handled with care.
2. The leaves must not be turned down, nor any part written in or marked up.
3. If defaced or injured by the pupil using it, said pupil must replace it with a new one.
4. This book may be taken home by permission of the teacher.

## TO THE TEACHER

1. The number of this book should be charged to the pupil on the distribution blank in the proper column.
2. Pupils leaving the city or moving from one school to another, must not carry away any books or supplies furnished them.
3. Report promptly to the principal all cases of defacement, damage or loss.

G. 2-P—Ed. 1946

# Conserving the Health of Colorado's Children

## A HANDBOOK for TEACHERS

STATE OF COLORADO
Department of Education
and
Division of Public Health
1944

FEDERAL SECURITY AGENCY

U. S. OFFICE OF EDUCATION

WASHINGTON

To the Teachers of Coloredo:

The schools have a major responsibility for the development and maintenance of well-conceived and effective programs of health education. No other institution except the home has so much contact with children and youth or so golden an opportunity to give them significant instruction and compelling motives in matters perteining to health and physical fitness.

For some elements of the health and physical fitness program the schools will necessarily solicit the aid of other community agencies. But for the program as a whole, the schools, including every teacher at work in them, cannot escape responsibility.

Cordially yours,

J. W. Studebaker

Commissioner.

IN REPLYING
ADDRESS THE SURGEON GENERAL
U. S. PUBLIC HEALTH SERVICE

FEDERAL SECURITY AGENCY
U. S. PUBLIC HEALTH SERVICE
WASHINGTON

To the Teachers of Colorado:

The Nation needs now as never before strong and vigorous citizens -- not only to win a war but to build a new and better world of tomorrow. To prepare the youth of our country for healthful living, therefore, is a task which our teachers can and should undertake, not only in the general classroom but wherever in the curriculum the study of individual and community health can be introduced. It is not a task only for the teacher of a particular subject, but for all teachers. To that end, your State public health and educational authorities have prepared this manual. It is my earnest hope that every teacher in Colorado will be thereby stimulated to devote more attention to the preparation of the children for healthful living.

Sincerely,

Thomas Parran

Surgeon General

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## FOREWORD

"Conserving the Health of Colorado's Children" is the result of requests for assistance and information that have come from many teachers throughout the state. The handbook represents the efforts of a committee which has been working for more than two years under the direction of the State Division of Public Health and the State Department of Education.

The committee does not claim entire originality for the content of this handbook, since it has tried to glean from all available sources the health information that would be most useful to teachers. We gratefully acknowledge the use that has been made of the health education publications upon which we have so freely drawn. We also wish to thank the representatives of local, state and national organizations who have given valuable assistance. Among these are:

Helen Cannon, Medical Social Consultant, Division of Maternal and Child Health, Colorado State Division of Public Health; Charles Dowding, Division of Sanitary Engineering, Colorado State Division of Public Health; Carey J. Downing, Supervisor of Special Education, Colorado State Department of Education; Winifred Hathaway, Associate Director, National Society for the Prevention of Blindness; Agnes McKenna, R.N., Field Advisory Nurse, Division of Public Health Nursing, Colorado State Division of Public Health; Eleanor M. Mumford, R.N.,

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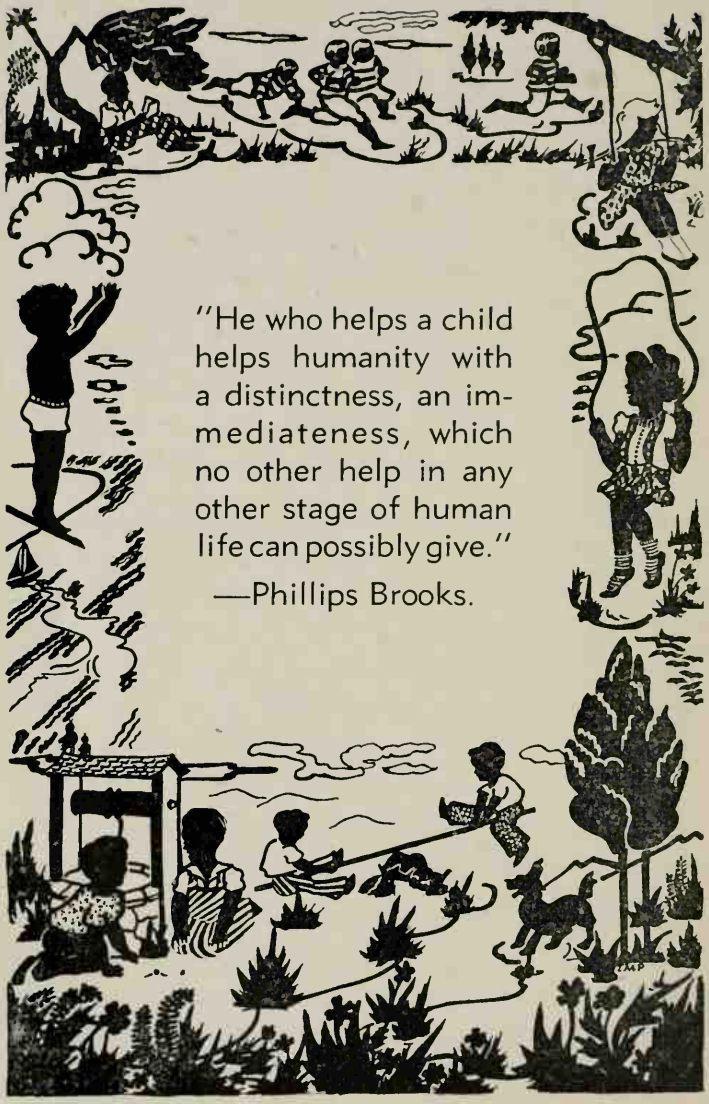
Illustrations were prepared by students of Miss Helen Perry at East High School, Denver. The drawings used in this handbook were made by: Maxine Perisho, Patsy Ruth Carr, Betty Gulick, Troy Davis, John S. Knowles, Jr., Edward Shanahan, Martha Barton, Darlene Wycoff, Marguerite Hall, Annette Wilcox, Anita Bornschlegel, and Charlotte Patterson. We appreciate the fine work of these young people.

Acknowledgment is also due Pycopé, Inc., for the use of their photographs on toothbrushing technique.

It is the hope of the two state departments that all teachers in the schools of Colorado will find this handbook a compendium of factual and authentic information, to guide them not only in the teaching of health, but also in raising the health standards of Colorado's children.

The work of the committee will be made more valuable if teachers and administrators will submit comments and suggestions for the constant improvement of this handbook.



"He who helps a child helps humanity with a distinctness, an immediateness, which no other help in any other stage of human life can possibly give."

—Phillips Brooks.

## PREFACE

The teacher is keenly aware that the health experiences of the child will have a vital effect upon his entire life. He believes, then, that the teaching of health is not a matter to be relegated to a few minutes a day or week, but it must be a significant part of the total school program. Therefore, he will not overlook a single opportunity to promote health and to inculcate health habits during the entire school day.

As the teacher is charged with leadership, not only in the school but in the community as well, he has the additional responsibility of studying and utilizing every community resource in order to improve the health of children entrusted to him. In every community there are resources for the development of child health that are almost untouched. Working with and through the school administration, and cooperating with local and state agencies in the use of these resources, the teacher can improve immeasurably the health of the community in which he is privileged to serve.

By assisting the young children under his care to develop healthy minds and vigorous bodies, the teacher is not only building better community citizens but better Americans—a finer, stronger nation. All over our country today is heard the cry voiced by the Commissioner of Education, "America must be strong—strong to meet any threats against her way of life from armed aggressors; strong to solve her domestic problems by peaceful, democratic means. To the building of a stronger America, the schools of the nation are dedicated!"

Can the teacher meet this challenge? Is he himself physically and mentally equipped to face these responsibilities? Is he alive to the emotional stress affecting the life of every child? Does he realize, moreover, that only healthy, industrious, well-balanced young American citizens will insure the progress, even the very continuance of our democracy? Here is his challenge, here is his opportunity to make an outstanding contribution to our nation and to future civilization.

INEZ JOHNSON LEWIS,
State Superintendent of Public Instruction,
Colorado State Department of Education.

ROY L. CLEERE, M.D.,
Executive Officer, State Board of Health,
Colorado State Division of Public Health.

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# THE HEALTHY CHILD

## The Responsible Teacher Observes the Health of Pupils Constantly

The home, the school and the community are jointly responsible for conserving the health of Colorado's children. This responsibility can be fulfilled only with the cooperation, the understanding, and the active assistance of parents and teachers. In a larger sense it involves all of the people of the community who are interested in building a healthier citizenry today and tomorrow.

In such a program the privilege of leadership often rests upon the teacher. By conserving and by improving, in so far as possible, the health of school children, he will promote better health in the whole community. Therefore, the teacher who appreciates the value of good health, who himself exemplifies the best health practices and who stimulates in his pupils the desire to live healthfully, becomes the key person in school health work.

Before the teacher can develop an effective health program, the school must have definite school health policies. These should cover the following points:*

Healthful environment, including school safety and sanitation, social and emotional environment and health of school personnel

Care of accidents and sudden sickness

*"SUGGESTED SCHOOL HEALTH POLICIES," prepared by the Joint Committee on School Health of the Colorado State Department of Education and State Division of Public Health.

Prevention and control of communicable disease

Periodic health examinations, with a follow-up program for children needing medical or dental care

Planned health instruction for all pupils, coordinating and utilizing all types of health experiences

Special education programs for handicapped children

In-service training for teachers

With the school health policies clearly established, the teacher's part in the school's program of health conservation begins with an awareness of the signs of good health or the lack of it in pupils, a knowledge of the factors that are conducive to good health, and a cognizance of the relationship of good health habits to successful living.

I. **Characteristics of the healthy child include an active, well-developed body; an alert, intelligent mind; and a normal social attitude toward others.**

A. PHYSICALLY, the child should have skin that is smooth and clear; eyes bright without circles under them; facial expression alert, eager and without strain; color good; muscles firm and well developed; posture good — head erect, chest up, shoulders straight and abdomen in; weight average for age and build; teeth sound and clean. Such a child usually sleeps well and has a good appetite.

B. MENTALLY, the child will be alert and will exhibit a wide-awake attitude toward classroom activities. He will show a general interest in subjects discussed, and a concentrated interest in some special subject, depending upon his own natural inclinations.

C. SOCIALLY, the child will be cooperative, will desire normal play, will wish to excel in something, and will enjoy the company of others.

**II. Factors conducive to good health should be given special emphasis in the educational program. These include:**

A. PROPER DIET. Every child should have enough of the right kinds of food. This is discussed in the section on Nutrition, page 39.

B. FRESH AIR AND SUNSHINE. These are important for child growth as well as for building children's bodily resistance to disease. In order to be effective, the sunlight must fall directly on the skin; ordinary window glass and clothing screen out the beneficial violet rays. Outdoor activities should be included in the school's program when the weather permits.

C. PLAY AND EXERCISE. Some form of physical activity should alternate with periods of inactivity. The type of recreation and the amount of exercise should be determined by the condition of the individual child. Schools not having physical education teachers can often encourage

physical activity by having one of the classroom teachers assume leadership in various types of games, and by securing safe and sufficient playground equipment.

D. SLEEP AND REST.* Enough sleep and rest are vital needs of the growing child and are also important in the teacher's own life. The amount of sleep that each individual should have at night depends upon his age and general health.

It is recognized that intervals of complete rest during the day are more and more a necessity to relieve tension and to maintain good health. Fatigue is an enemy in the classroom. With a little planning, several opportunities for rest can be provided daily in every school. Complete inactivity in a prone position is most desirable, either on cots or on the floor. Small rugs, newspapers, or some other protection should be used under the child. However, if floors are cold or drafty, this would not be an advisable procedure. In any classroom, the child may secure a degree of rest by folding his arms on the desk and laying his head on them.

E. SUITABLE CLOTHING. The clothes worn by an individual should enhance his mental and physical health. They should be clean, comfortable, and suitable for the weather. Clothes that are also becoming and appropriate for the occasion contribute to a person's sense of well-being and social ease.

*Refer to Appendix, page 165.

F. HEALTHFUL SURROUNDINGS. Children are greatly affected by their surroundings. People are as much a part of their environment as are physical factors. Further explanation of the value of healthful surroundings will be found in the sections on Mental Health, Environment, and Accident Prevention.

G. PROTECTION AGAINST COMMUNICABLE DISEASES. Immunization and other preventive measures are discussed in the section on the Ill Child and in supplementary material in the Appendix. Safe water and milk and other sanitary measures are explained in the section on Environment.

H. PERIODIC MEDICAL AND DENTAL EXAMINATIONS. These are necessary for maintaining good health. Many illnesses or complications could be prevented by early discovery and treatment. This is emphasized in many sections of the handbook.

I. NORMAL MENTAL ATTITUDES. Normal mental attitudes are as essential to good health as are physical factors. The section on Mental Hygiene enlarges upon this subject.

III. **Health habits that promote health and prevent illness should be firmly established as part of actual everyday living.** Among the more important habits that should be developed in children are those that pertain to cleanliness, to eating and elimination, to

rest and exercise, to posture, to care of teeth, eyes and other organs of the body, etc. Such habits are discussed in subsequent sections of this handbook in relation to the conditions with which they are involved.

## EDUCATIONAL ACTIVITIES

Encourage various kinds of physical education activities in order that the health needs of individual children may be met. Games and use of gymnasium or playground equipment are advisable for most children.

Discuss and demonstrate the effects of sunlight on plant growth. A bulb, potato or other plant might be grown in a dark room and then brought out into the sunlight to continue growth.

Contrast the effects of good and poor ventilation in sleeping rooms or classrooms.

Have regular rest periods for children and teacher each day.

Make posters or a scrapbook with pictures of suitable and appropriate clothing for school children.

Construct a miniature model or secure drawings or illustrations of a house having proper lighting, ventilation and sanitation.

List the things that should be included in a complete physical examination.

## SUGGESTED REFERENCES AND MATERIALS

American Medical Association, 535 North Dearborn St., Chicago, Ill.

"Suggested School Health Policies," Joint Committee on Health Problems in Education of the National Education Association and American Medical Association, 1940.

"Periodic Health Examination," 1940. 104 p. 25 cents.

"Schedule Fatigue in School Children," Joint Committee on Health Problems in Education, reprinted from "Hygeia," March, 1943.

Children's Bureau, U. S. Department of Labor, Washington, D. C.

Materials on all phases of child health.

"Methods of Assessing the Physical Fitness of Children," Publication No. 263, 1940. 121 p. 15 cents.

Community Service Society, 105 East 22nd Street, New York, N. Y.

"The Health Examination," No. 7, April, 1940, illustrates steps in the physical examination of a woman. No. 7b, September, 1940, illustrates health examination of a man. Pamphlets cost approximately 25 cents each.

U. S. Public Health Service, Washington, D. C.

"Personal Hygiene," Supplement No. 137 to Public Health Reports, 1940. 46 p. 10 cents.

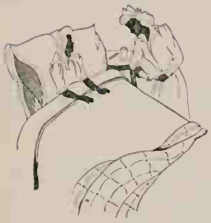
American Public Health Association, 1790 Broadway, New York, N. Y.

"Bibliography on Public Health and Allied Subjects." Contains a list of many of the health textbook series for children.

Also refer to list of general references and additional sources of materials in Appendix, page 235.

# THE ILL CHILD

## The Alert Teacher Recognizes Signs of Illness in Children



A fundamental factor in the school health program is the teacher's careful observation of each child in the classroom. In order to make intelligent observations, the teacher must be able to recognize signs of illness as soon as possible after they appear. Some illnesses are of the acute type, others are more chronic; some are communicable, others are not.

"Unfortunately there is no definite set of easily recognized early symptoms whereby communicable diseases may always be distinguished from those illnesses which are not communicable. Nor is the teacher expected to recognize symptoms. There are, however, physical conditions which teachers can observe."* Some of these may be the bases for exclusion until the family physician or the health officer can give an opinion. The school personnel must have the full support of the school board, as well as the cooperation of physicians and parents, in segregating or excluding from school the child with a cold or other apparent ailment.

Some method of observing children to make sure that no child is in school who should not be there is definitely a teacher's responsibility every day. Local school authorities will determine which of the teachers is responsible

*"The Common Communicable Diseases—Information for Teachers," Michigan Department of Health, 1936.

each morning for discovering evidences of illness. This should be an informal type of inspection such as might be possible while the child stops at the teacher's desk for a morning greeting. Thereafter during the WHOLE DAY every teacher will continue to be on the alert for any indications of illness.

I. **Acute Illnesses, Including Many Communicable Diseases.†**

"Communicable diseases in the school are spread usually by cases before a diagnosis is made, or by mild cases which do not come to the attention of a physician. The period of communicability for these diseases varies considerably, but for most of them the greatest danger to others is during the first symptoms. For this reason an early recognition of the POSSIBILITY of a child's having a communicable disease is important.

"Exclusion from school should not await a diagnosis. It is better to exclude children on the basis of a suspicion of a communicable disease which eventually is proved unfounded than to allow a doubtful case to remain in school. Report all suspicious cases at once to the local health officer. Prompt exclusion will be found to improve the attendance record."* It will also bring the parents' immediate attention to acute illnesses that are not communicable and yet that might endanger the child's life.

†Refer to Information Regarding Communicable Diseases, Appendix, page 175.
*"The Common Communicable Diseases—Information for Teachers," Michigan Department of Health, 1936.

## A. POINTS WHICH THE TEACHER SHOULD CONSIDER AS A BASIS FOR EXCLUDING CHILDREN FROM THE CLASSROOM

1. Any distinct change or suggestion of change in a child's usual appearance or conduct
2. Pallor, flushed face or complaint of chilliness which may indicate fever†
3. Dizziness, faintness, headache, nausea, vomiting, stomach-ache or severe abdominal pain
4. Unusual drowsiness or irritability
5. Red, inflamed or discharging eyes; severe earache or toothache
6. Sneezing, which is often the forerunner of common colds, measles, whooping cough, or other respiratory infections
7. Nasal discharge, of which the watery type is most significant
8. Sore or inflamed throat
9. Coughs, especially those that are newly developed
10. Rash or sores of any kind on the scalp, face, neck, hands, arms, legs, or feet

†Teachers should take temperatures only when they have been thoroughly instructed in thermometer technique and have been authorized to do so.

B. STEPS WHICH THE TEACHER SHOULD TAKE IN ISOLATING OR EXCLUDING CHILDREN

1. Segregate the child, make him as comfortable as possible, and maintain an attitude that prevents him from becoming bewildered or frightened.

   a. If this condition requires further attention, place him on a cot covered with clean papers, with paper towel under his head and a light cover, such as his own coat, over his body.

   b. Give him disposable tissues and a waste basket lined with paper for the used tissues.

2. Report illness to the principal.

   a. The principal or teacher should request help from the local public health nurse or health officer when symptoms of any communicable disease or infestation are first noticed. The local health officer is the authority to determine the length of time a child should be kept out of school on account of communicable disease. The school personnel are expected to be familiar with local health regulations and to cooperate with the local health officer.

   b. Principal notifies the parents and informs them of the child's symptoms, of the measures taken at school, and what health

regulations must be observed before the child may be readmitted.

3. Take precautions to prevent spread of any possible communicable disease.

   a. Burn papers from the cot and the entire contents of the waste paper basket.

   b. Wash wooden and metal parts of cot with soap and water. For at least two hours, sun and air the cot and all articles used by the child.

   c. Clean and air the rooms thoroughly.

4. Record on pupil's health card child's exclusion from school and the physician's diagnosis.

## C. PERSONAL HYGIENE HABITS THAT THE TEACHER SHOULD FOSTER IN ORDER TO HELP PREVENT DISEASE

The child should be taught to:

1. Bathe the body frequently with soap and water.

2. Wash the hands with soap and water before eating and after going to the toilet.

3. Keep the fingers and unclean articles away from the mouth, nose, eyes, ears, and genitalia.

4. Avoid close contact with others when there may be a spray from the nose or mouth due to coughing, sneezing, talking, or laughing. Each individual must feel a responsibility for covering his coughs and sneezes.

5. Use only individual drinking cups and eating utensils. When children bring cups and glasses from home, a systematic plan must be worked out for keeping them clean and sanitary. Space may be provided inside a cupboard for the utensils of each child. At a regular time, at least once a week, cups and glasses should be thoroughly sterilized.

6. Use only individual comb, toothbrush, wash cloth, towel, and other toilet articles. They should be cleaned with soap and water frequently. A separate hook or container should be provided for each child's articles.

7. Avoid being in a draft or remaining in wet clothes and shoes. Dress suitably for seasons and room conditions.

II. **Chronic Illnesses.**

A. GENERAL CONDITION AND APPEARANCE OF CHILD

1. There are some children who obviously do not appear to be well and yet it may be difficult for teachers to detect specific signs or symptoms of ill health. Some of the general symptoms a teacher might notice include:

a. Abnormal color. The child might be pale, have circles under his eyes, or a bluish tinge to his lips; or a child's cheeks may be flushed.

b. Unexplained fever or headaches

c. Fatigue. A child may tire easily and more quickly than other children, or he may always seem tired even though he has sufficient sleep.

d. Odors. Children sometimes have odors which may not be associated with uncleanliness. Bad breath, excessive perspiration, or malodorous feet are sometimes indications of abnormal conditions of the body.

e. Nervousness or poor muscular coordination. Frequently, children who are not well may be restless and irritable, or may cry easily. Occasionally a child may have difficulty controlling muscular movement — may bump into things, or fall easily.

f. Joint pains, sometimes referred to as "growing pains"

g. Swelling. Any swelling of glands, joints, face, or the legs, or puffiness under the eyes is usually a sign of illness.

h. Shortness of breath. Children may sometimes pant or gasp for breath after the slightest exertion, or wheezing may be noticed.

2. Children whose general condition does not seem normal should be referred for follow-up care.*

   a. Some of these children may be found to have chronic infection or physical defects. Others may have rheumatic fever, heart trouble, tuberculosis, asthma, kidney infection, diabetes, or some other disease.

   b. A child's physician may recommend that the child's physical activities be limited at school, that the child have special rest periods, or that he attend school on a part-time basis. Teachers who understand the child's condition may help the child and family in carrying out the physician's orders.

## B. NOSE AND THROAT CONDITIONS

1. Children who have abnormal nose and throat conditions usually can be discovered through the observation of the teacher. The teacher does not need to inspect these organs, as signs and symptoms and the child's health history will usually indicate which children need attention.

   a. Signs and symptoms

      (1) Persistent mouth breathers; difficulty or inability to breathe through nose

      (2) Chronic nasal discharges

*Refer to section on Community Resources, page 103.

(3) Bad breath; foul-smelling particles may come from tonsils

(4) Facial appearance

(5) Voice lacking nasal resonance, and speech indistinct

(6) General signs of infection, such as fatigue, nervousness, or failure to gain weight

b. History of related illnesses

(1) Frequent colds

(2) Sore throat

(3) Running ear

2. Children who show signs and symptoms of nose or throat trouble should be referred for follow-up care.* Occasionally teachers will have a pupil with cleft palate or harelip conditions. Such children are usually considered crippled children, and needed assistance may be secured from agencies serving crippled children.

Children with abnormal nose, throat, or lip conditions often have speech handicaps that require special attention.

## C. POSTURAL AND ORTHOPEDIC CONDITIONS

1. There are many factors that might contribute to poor posture. Any of these may be more

*Refer to section on Community Resources, page 103.

serious if the child is affected by poor nutrition, fatigue, or illness. They include:

a. Chronic infections. Infections, which lower resistance and deplete body vitality, result in diminished muscle tone and fatigue causing the body to slump.

b. Defects of vision and hearing. These defects may cause the child to develop poor posture from a one-sided use of the body in an effort to see or hear better.

c. Shoes. Shoes which are run over at the heels or constant wearing of high-heeled shoes may cause poor body alignment. Shoes that are too short or improperly fitted may cause foot trouble and affect posture.

d. Clothing. Tight clothing which restricts freedom of movement hampers normal muscular development that is essential to good posture. Clothing has a marked psychological effect. The girl who has a new dress has a sense of pride and poise which is reflected in her posture. Adolescent girls are sometimes self-conscious of their rapid development and wear brassieres that are too tight, or stand in a slumped position because of a feeling of embarrassment. Girls who are tall for their age may stand slumped or may place their weight on one leg with hip high and bend

the knee on the opposite side in an effort to appear shorter.

e. Furniture. Chairs or school seats not adjusted to body height and body build; tables, desks and working equipment placed at a height which causes positions of strain; soft beds with sagging springs — all have unfavorable effects upon posture.

f. Physical activities. Lack of variety in physical activities or frequent one-sided use of the body, such as carrying books on the same side, may contribute to poor posture.

g. Emotional attitudes. Emotional attitudes, such as worry, lack of self-confidence due to a feeling of insecurity or inferiority, and discouragement are reflected in posture.

2. The teacher might observe signs of structural or postural defects which, if discovered and treated early, may prevent the development of orthopedic conditions or at least prevent serious deformities.

a. Difference in the height of the shoulders or hips

b. List of the body to one side

c. Stiff round shoulders

d. Winged shoulder blades

e. Any prominence on the back

f. A limp

g. Difference in the size of the legs and arms

h. Muscular rigidity or incoordination

i. Legs and knees that are not straight

j. Foot trouble

3. Follow-up care should be instituted as soon as possible, since early diagnosis and treatment are so important.* Measures for improving the nutrition and general health of children are also essential. Likewise regular medical examination, followed by correction of physical defects and instruction planned to develop good health habits, have a direct relation to good posture although not always carried out for that specific purpose.

   Two more essentials should be stressed: an awareness of the "feel" of good posture in activity and repose, and a desire to make good posture habitual.

## D. OTHER CONDITIONS

There are other conditions affecting a child's health that will be discussed separately in greater detail in subsequent sections of this handbook.

*Refer to pages 103 and 167.

## EDUCATIONAL ACTIVITIES

Demonstrate good hand washing, using soap, paper towels and running water, where possible.

Encourage children to observe themselves before a mirror.

Demonstrate correct position of sitting, standing, walking, or climbing stairs.

Have children make individual paper drinking cups.

Demonstrate proper use of drinking fountain or other drinking facilities.

Demonstrate use of handkerchief for covering mouth and nose when coughing and sneezing. Discuss the correct way to blow the nose.*

Report on achievements of Pasteur, Jenner, Reed, Lister, Trudeau, and others. Discuss germ theory, bacteria, and disinfection. Report on the tuberculin test, Schick tests, and serological tests for syphilis.†

Discuss immunization. Make a survey of the number of children in the class who have been protected against diphtheria and smallpox.‡

Show scattering of mouth spray by talking, sneezing, coughing, and laughing in front of a mirror. For demonstration purposes the mirror should be two feet away for speaking, and as much as six feet away for sneezing.

Visit the local health department and get a report of prevalent communicable diseases.

*Refer to page 87.
†Refer to Appendix, pages 170-174.
‡Refer to Appendix, pages 167-169.

Arrange for pupils to visit places of interest, such as water supply plant, modern dairy, sewage disposal plant, or medical laboratory. Discuss methods of eliminating breeding places for flies and mosquitoes.

Make posters and booklets.

Show slides and moving pictures.

## SUGGESTED REFERENCES AND MATERIALS

Colorado State Division of Public Health, State Office Building, Denver 2.

Literature, loan packets, and moving picture films.

"Communicable Disease Control," Revised 1942, 63 p. Free. Contains information regarding average length of communicability of disease, control measures, and other data.

U. S. Public Health Service, Washington, D. C.

Publications relating to acute and chronic illnesses.

"Communicable Diseases," A. M. Stimson, 1939, 111 p. (Miscellaneous Pub. No. 30.) 25 cents. A readable and interesting book written for high school and college students.

American Medical Association, 535 North Dearborn Street, Chicago, Ill.

Materials relating to various illnesses.

American Red Cross, 17th and D Streets, Washington, D. C.

"Textbook on Home Nursing," 1942, 431 p. 60 cents.

American Heart Association, 1790 Broadway, New York, N. Y.

Publications relating to cardiac conditions.

American Social Hygiene Association, 1790 Broadway, New York, N. Y.

Books, pamphlets, posters, and moving picture films concerning venereal disease control and sex education.

Colorado Tuberculosis Association, 613 Mack Building, Denver 2.

Literature, posters, and moving picture films relating to tuberculosis and other health education subjects.

National Foundation for Infantile Paralysis, Inc., 120 Broadway, New York, N. Y.

Pamphlets and information regarding infantile paralysis.

Joint Orthopedic Nursing Advisory Service of the National Organization for Public Health Nursing and the National League of Nursing Education, 1790 Broadway, New York, N. Y.

"Posture and Nursing," Jessie L. Stevenson, R.N., 1942, 63 p. Free. Although written for nurses,

this booklet is equally valuable to teachers. It is profusely illustrated and includes excellent material on posture of the school child.

Other commercially-sponsored materials may be secured free or at low cost.

See Appendix, page 235, for list of agencies and Bibliography.

# NUTRITION

## The Progressive Teacher Measures Nutrition in Terms of Adequate Growth and Development of the Child

No subject is of greater importance today than that of nutrition. Upon the development of healthy, well-nourished children depends the future of this nation. The school and the home cooperate as the chief agencies in the control of the general health and nutrition of the child. The teacher in the classroom may teach the principles of good nutrition, but it is up to the home and the community to put into effect these teachings for the development of a nation of strong and well-nourished children.

Nutrition is the sum of processes by which the human body absorbs food, water, and air and uses them for building tissues and supplying fuel. Substances which the body needs for these purposes are many and varied, the total amount for any child depending on his individual needs.

It is very difficult to recognize early signs of poor nutrition, since so many factors are involved. The teacher should be familiar with the characteristics of a healthy, well-nourished child, and then watch to see if children deviate from these standards.* Good nutrition is dependent upon the same factors that are necessary for good health,† especially proper foods and good eating habits emphasized both at home and at school.

*Refer to section on The Healthy Child, page 16.
†Refer to section on The Healthy Child, page 17.

I. **Factors Contributing to Good Nutrition**

A. A WELL-BALANCED DIET, RICH IN THOSE ELEMENTS ESSENTIAL TO GOOD HEALTH IS REQUIRED BY EVERY INDIVIDUAL. Usually it is not necessary to figure calories and food values in order to obtain a good diet. Menus built around the following daily minimum requirements will provide those elements needed by the average person:

| Essential Foods | Daily Needs |
|---|---|
| **Milk** . . . . . Fresh, evaporated or dried; as a drink, as cheese or in combination with other foods | 3 or more glassfuls for children, 2 or more for adults |
| **Butter** . . . . . Or butter substitute enriched with vitamin A | 2 or more tablespoonfuls |
| **Eggs** . . . . . Prepared as desired or in combination with other foods | At least 3 or 4 a week, preferably one each day |
| **Meat, poultry, fish, or cheese** . . . . . Dried beans, peas, or nuts may be used occasionally | 1 or more servings |

| Essential Foods | Daily Needs |
|---|---|
| **Vegetables** . . . Yellow or green often, some raw, some cooked | 2 or more servings besides potato |
| **Fruits** . . . . . Raw cabbage or salad greens may be substituted for the citrus fruit or tomato to provide vitamin C | 2 or more servings, including 1 of citrus fruit or tomato |
| **Bread and cereal** . . Most of it whole grain or enriched | As desired |

Infants and children should receive cod liver oil or an equivalent rich source of vitamin D, especially in the winter months.

B. DESIRABLE EATING HABITS ARE IMPORTANT FACTORS OF GOOD NUTRITION. The child should

1. Have regular mealtimes. Some children do not eat breakfast, either because they are in too much of a hurry or because they have not cultivated an appetite for it. Three meals a day at regular hours should be stressed. Preschool children, some adolescents, and overactive or underweight children may need a midmorning and an after-school lunch.

2. Chew food thoroughly. This is essential for proper digestion.

3. Drink plenty of water. Care should be taken not to wash down solid foods that should be chewed longer.

4. Learn to eat various kinds of foods. Some families have not taught their children to eat a variety of foods, or they have catered to children's likes and dislikes. Fried foods, rich pastries, and highly seasoned foods should be avoided. Persons who are constipated may be helped by eating foods rich in vitamin B, fruits and vegetables high in fiber content, and whole grain cereals. Regular habits of elimination are necessary for good health.

5. Talk and think about pleasant things during the meal. Excitement and emotional disturbances at mealtime interfere with normal digestion. If the child is tired, he should rest awhile before or after eating.

II. **Height-Weight Measurements to Determine Adequacy of Child Nutrition**

A. WEIGHING AND MEASURING ARE THE MOST EASILY RECOGNIZED TESTS.

1. Steady growth is one of the most reliable indications of good health in children, and gain

in weight is the most convenient measure of growth. Children should be weighed at regular intervals, at least three times a year; height should be measured at the beginning and end of the school year.*

2. These tests of growth and nutrition may be educational experiences if the child is taught the relation of weight to health or illness, to habits of eating and sleeping, and to a desire for activity or inactivity. The child should learn to watch his own growth by noting progress on his weight record. Simple graphs for individual weight records may be worked out as arithmetic or drawing projects.

B. AVERAGES GIVEN IN HEIGHT-WEIGHT TABLES MAY BE MISLEADING. The use of these tables is not recommended as the sole means of determining which children are properly nourished. Children whose weights are below the average for their height and age may not be undernourished. The emphasis should be on the gains of the individual child. These gains will be influenced by family or racial traits, and are not necessarily dependent upon the economic status of the family. The teacher need not be unduly disturbed, however, by natural fluctuations in growth periods which are experienced by normal children.

*For suggested procedures, refer to Appendix, page 207.

C. VARIED PROCEDURES MAY BE USED FOR CORRECTING UNSATISFACTORY WEIGHT.

If a child loses weight or fails to gain for the duration of the school year, the teacher should discuss this fact with the parents. If school nursing service is available, the nurse should be advised.* The same procedure should be used if the child seems overweight or if he seems to gain too rapidly. Further investigation of the child's condition may show need of the following:

1. A complete physical examination with correction of physical defects as recommended by the physician
2. Additional rest—usually earlier bed time; sometimes rest periods during the day
3. Changes of home routine so the child may have a regular schedule
4. Special attention to diet to meet the child's needs, with emphasis on an adequate diet†

## III. The School Lunch as a Definite Factor in Maintaining Child Health

A. BASIC HEALTH PRINCIPLES

There are many methods employed in schools to provide lunches for school children. Whatever the method, there are certain basic health principles which should be followed, among which are:

*Refer to section on Community Resources, page 103.
†Refer to page 40.

1. Sufficient time should be allowed for the lunch period so that each child will have at least twenty minutes to spend at the table eating his food, and in addition, time for recreation before the next class meets. The noon period should be a time of relaxation that will break the tension of the day for teachers and pupils alike.

2. Provision should always be made for hand-washing before eating. Running water, soap, and individual towels should be available, and time provided for proper washing.

3. A special lunch room is desirable. It should be kept clean and managed so that the children may be seated at tables without crowding. If a lunch room is not available, the child's desk may be used.

4. A member of the school staff should be delegated for active and direct supervision of the school lunch program.

5. Supervision of children during the lunch period should be provided.

B. SCHOOL LUNCHES

The school lunch or noon day meal should furnish approximately one-third of the child's daily food needs and should include a hot food or drink. This noon day meal for children unable to go home can be provided in various ways.

1. Entire noon day meal brought from home.
   a. Equipment necessary for packing lunch:
      A ventilated tin box, tin bucket with holes punched for ventilation, or the regular lunch box provided with a vacuum bottle; screw-top glass bottles and jars for liquids and semi-solid foods; oil paper to keep food moist and prevent absorption of flavors; two paper napkins, one to spread on the desk or table; and knife, fork, spoon, and glass or cup.
   b. How to pack a school lunch:
      Wash all raw fruits and vegetables thoroughly. Wrap all food in oiled paper and pack heavy foods in the bottom of the box, with soft crushable foods on top. All foods should be cooled before they are put into the lunch box.
   c. The hot jar lunch:
      (1) This method of providing hot food for lunch is simple and requires a minimum of time and school equipment. Its success, however, depends upon the cooperation of pupils, parents, and teachers.

      The lunch box contains an easily identified covered jar of food, cooked and cooled at home, to be heated at school. Shortly before lunch, the jars with loosened lids may be heated in a

covered kettle containing a small amount of water. After lunch, the empty jars are put in the lunch box and sent home for washing.

(2) School equipment needed:

Clean, cool cupboards or shelves that are free from mice and flies should be provided for storing the children's lunches. Other equipment should include a large kettle or other container having snugly fitted lid, and a rack to elevate the children's food jars an inch from the bottom of the pan when they are being heated.

A stove and a jar lifter are the only other equipment needed. The school heating stove may be used if it has a flat top.

(3) Suggested foods for the hot jar that can be prepared at home:

Cream soups — such as potato, tomato, onion

Milk or cocoa made from milk

Cereals — oatmeal, rice, whole wheat, or others

Vegetables — buttered, creamed, escalloped, or baked

Eggs—hard cooked or creamed

Meats—stews, meatballs and spaghetti, escalloped ham and potatoes, hash, chicken pie, or chili

Spanish rice—other rice dishes

Macaroni and cheese

2. A part of lunch prepared at home and a part at school

   The child may bring a part of his lunch, such as sandwiches, from home and receive part of it, as a hot food or drink, at school. A parent-teacher association group may take the responsibility of serving one hot dish of food each day. It might be prepared at home and brought to school. The dish might be prepared by older children at school if kitchen facilities are provided. Potatoes might be baked at school.

3. Entire meal prepared at school

   In schools which have a cafeteria the problem of the school lunch is a more complex situation. It may or may not be desirable to have the teacher and her class room group eat together, depending on the age of the children or facilities for other supervision.

   The menu may be posted in the morning so that class members and the teacher may have a chance to discuss wise choice of foods before going to the lunch room. It is desir-

able to attempt to make children responsible as individuals for courtesy and for wise choice of foods.

In schools having lunches which do not allow for individual choices, the teacher should be interested in the quantity, quality, and variety of food served, and should feel free to make suggestions for change.

C. THE LUNCH ROOM

The lunch room is discussed in the section on School Environment.*

## EDUCATIONAL ACTIVITIES

Keep an individual graph or other record showing weight and height.

Keep a record of what is eaten over a period of time, and see if all of the essential foods are in the diet.

Make or collect food posters and exhibit them in the town or community.

Compare the eating habits and types of food eaten by our people with those of people in other countries.

Demonstrate an adequate and properly packed lunch.

If the school does not serve hot lunches, discuss the development of a hot lunch project—such as the hot jar method or hot foods prepared at school.

Study school lunch menus and make suggestions for their improvement.

*Refer to section on School Environment, page 130.

Consider the contribution the home garden makes to better nutrition. Help plant and raise a school garden.

Discuss the various methods of food preservation—such as canning, drying, or freezing.

Make an exhibit showing the story of wheat, rye, oats, or some other grain, tracing the steps from the time the seed is planted until the grain is prepared in cereal or bread. As part of the exhibit, children might plant seed in the sand box, window box, or other containers. If possible, visit a local flour or grain mill or demonstrate how grain may be ground.

Study food elements and their contribution to the body. White rats might be used to demonstrate the effects of food on growth and development. Information concerning rat studies and securing rats may be obtained from the State Division of Public Health.

Older children might visit markets, dairies, and other food establishments to study methods of handling and transporting foods. Study the laws governing the sale and handling of foods.

Younger children might color and cut out food pictures and assemble good meals from these cut-outs. They could also collect empty cartons and food containers and play store.

## SUGGESTED REFERENCES AND MATERIALS

U. S. Office of Education, Washington, D. C.

"Nutrition Education in the Elementary School," 1943. 35 p. 15 cents.

"Food for Thought: The School's Responsibility in Nutrition Education," 1941. 32 p. (Education and National Defense Series, Pamphlet No. 22.) 15 cents.

"A Selected List of Nutrition Materials from Federal Agencies," 1942. 4 p. Misc. 3021.

U. S. Department of Agriculture, Washington, D. C.

Materials on all phases of nutrition are available.

"Handbook for Workers in School-Lunch Programs," 1943. 30 p. (N.F.C.-3.) Copies obtainable from the State Department of Education.

Children's Bureau, U. S. Department of Labor, Washington, D. C.

"The Road to Good Nutrition," Lydia J. Roberts, Pub. 270, 1942. 54 p. 15 cents.

U. S. Public Health Service, Washington, D. C.

"What Every Person Should Know About Milk," 1941. 11 p. (Supplement to Public Health Reports No. 150.) 5 cents.

American Red Cross, 17th and D Streets, Washington, D. C.

"Food and Nutrition," Revised Edition, 1942. 87 p. 25 cents.

Public Affairs Committee, Inc., 30 Rockefeller Plaza, New York, N. Y.

"This Problem of Food," Jennie I. Rountree, 1941. 32 p. (Public Affairs Pamphlets No. 33.) 10 cents.

Colorado State College of Agriculture and Mechanic Arts, Extension Service, Fort Collins, and the Colorado State Nutrition Council, 810 Fourteenth St., Denver 2.

Distribute educational materials on nutrition.

Colorado State Department of Education, State Capitol Building, and Colorado State Division of Public Health, State Office Building, Denver 2.

Loan packets and books may be borrowed.

Many excellent commercially-sponsored booklets, charts, and moving picture films are available to schools. Some of these agencies are listed in the Appendix, page 235.

# DENTAL HEALTH

## The Conscientious Teacher Takes Responsibility for Dental Health of Children

The primary responsibility of the teacher is to engender in the child an alert attitude toward his oral health and its relationship to a strong, healthy body. This attitude will lead the child to receive periodic dental care, to eat a protective diet, to brush his teeth regularly, to be watchful of mouth habits, to be careful in the use of drugs for dental conditions, and to view his dentist as his friend.

### I. Dental Observation of Children

Dental health observations may be made by the teacher in the schoolroom to stimulate pupil interest in healthy mouths or to detect conditions which demand immediate attention. This observation by the teacher in no way can take the place of a regular examination by the dentist, for an incomplete examination frequently leaves the child with a false sense of security and thereby does more harm than good. Prevention, which is the ultimate goal of dental health education, depends upon the correction of defects before the teacher can possibly detect them. The teacher may note conditions which may have dental or mouth hygiene significance, and which may serve as bases from which to teach sound dental health practices. The teacher can make simple

observations, with or without the use of tongue depressors, and note the following:*

A. Cleanliness of the teeth

B. Irregularities of teeth, large cavities, broken-down teeth, toothache

C. Inflamed gums, gum boils

D. Offensive breath

E. Habits which undermine dental health

1. Biting of lips, fingers, or fingernails; pencil chewing and thumb sucking

2. Immoderate consumption of "sweets" such as candy, chewing gum, pop, ice cream sundaes, and pastry

## II. Basic Dental Health Principles

According to the best dental practices, the following six dental health principles are basic in the school health program:

A. REGULAR VISITS TO THE DENTIST BEGINNING AT PRESCHOOL AGE ARE FUNDAMENTAL TO GOOD HEALTH HABITS.

1. The first visit to the dentist should be made by the age of three, as some children of that age already have dental cavities.

2. Since individuals differ in mouth cleanliness and in their susceptibility to dental decay,

*Refer to section on Community Resources, page 103.

the frequency of the visits should be determined by the family dentist.

3. All infected and abscessed teeth, crownless roots, and teeth causing gum boils should be removed from the mouth immediately.

4. All cavities should be filled when small. Filling dental cavities when small not only saves both teeth and money, but also prevents the child's experiencing pain and fear.

5. Adequate care should be given the baby or "foundation" teeth until 11-12 years of age. Adequate care of "foundation" teeth can prevent the following:

   a. Toothache

b. Sickness due to infected gums, decayed and abscessed teeth

c. Crooked permanent teeth due to premature loss of "foundation" teeth

d. Indigestion due to inability to chew food properly and mix it with the saliva

e. Inadequate growth of the jaws and face due to lack of exercise of teeth and supporting tissues

f. Injury and destruction of the enamel of the crowns of the permanent teeth due to abscessed "foundation" teeth

g. Disfiguring appearance due to missing teeth

h. Speech difficulties. Teeth are accessory speech organs and children must have good teeth in order to enunciate their words clearly and correctly.

6. The first permanent molar (6 year molar) should be examined for defects by the time the child reaches 6 years of age. The first permanent molars appear directly behind the "foundation" teeth. They do **not** replace any of them and consequently are frequently mistaken for "foundation" teeth. Defects in the enamel that need filling immediately are often present in the newly erupted teeth. It is important to protect and preserve these first permanent molars, as they are the most important teeth in the mouth.

B. ADEQUATE DIET IS VITAL FOR THE GROWTH AND DEVELOPMENT OF SOUND TEETH.

1. Protective foods must be included in the diet for proper growth and development.*
2. Sweets should be kept to a minimum to help control dental caries. Certain acid-producing bacteria digest sweets and highly refined starches in a sheltered portion of a tooth, and thus produce enough acid to dissolve the minerals from the enamel and start a cavity. These bacteria die without food and so can be starved by a low sugar diet.

C. BEAUTIFUL TEETH MAY BE A REWARD FOR PROPER AND REGULAR TOOTH BRUSHING.

1. The best dental practice demands the brushing of teeth at least twice a day.
2. Teeth should be vigorously brushed from the gums toward the chewing surfaces, or in other words, in the direction in which they grow.†
3. Regular brushing of teeth will assist in the control of decay, and in warding off pyorrhea.

D. MANY MOUTH HABITS ARE INJURIOUS TO THE CHILD'S TEETH AND ORAL DEVELOPMENT.

1. Biting thread or cracking nuts with the teeth are frequent causes of chipped and broken teeth.

*See section on Nutrition, page 40.
†See Appendix, page 213.

2. Thumb sucking may cause a protrusion of the front teeth with a consequent narrowing of the roof of the mouth.
3. Pillowing habits, such as sleeping with the hand tucked between the face and pillow, is a frequent cause of misalignment of the teeth with a consequent interference with their function.
4. Lip biting may cause a separation of the upper and lower teeth so that they cannot be brought together. Thumb biting is another frequent cause of the separation of the upper and lower front teeth.
5. Mouth breathing can result in a shortened and weak upper lip.
6. Resting the head on one hand while writing and reading is a frequent cause of unsymmetrical contour of the face.

E. DRUGS ADVERTISED FOR USE IN THE MOUTH SHOULD BE USED ONLY ON ADVICE OF THE FAMILY DENTIST.

1. Any dentifrice used should have the "Accepted Seal" of the American Dental Association or the family dentist's approval. Many highly advertised dental preparations are useless, expensive, and in many cases injurious. A mixture of salt and soda, which may be flavored if desired, makes an excellent dentrifrice.*

*See Appendix, page 212.

2. Mouth washes are liquids having pleasant tastes and smells that are used to rinse one's mouth. The Council on Dental Therapeutics of the American Dental Association gives the value and benefits of mouth washes in the following statement:

> "Mouth washes may be somewhat useful, in that the vigorous use of them after brushing the teeth rinses from the mouth any food particles loosened by the brushing. They can do no more. NO MOUTH WASH CAN REMOVE FILM FROM THE TEETH, neutralize the mouth acidity, or cure halitosis. The consumer who wishes to use a mouth wash should know its composition, for the use of a mouth wash containing phenol or sodium perborate over a long period may harm the mucous membrane of the mouth. A solution of salt water of normal strength, two teaspoonfuls of salt in a quart of water, is the safest and least expensive mouth wash available."

3. One of the most harmful types of products sold to beautify the teeth is the so-called "stain remover" or "tooth bleach." There is a real danger in the sale to the public of preparations containing hydrochloric (muriatic) acid as stain removers or tooth bleaches. Acid preparations can whiten the teeth, but

at the same time they destroy the enamel and should never be used for self-beautification.

4. Patent pain-relievers may be fatally injurious. No patent pain reliever except aspirin should be taken unless it is prescribed by the family dentist or physician.

   Patent medicines containing acetanilid, acetphenetidin (phenacetin), antipyrine, and aminopyrine (pyramidon) are dangerous to use, particularly over a long period of time, because of their action on the heart, skin, blood cells, or blood forming tissues. Preparations which contain these drugs are now required to bear a statement on the label which indicates the drug that it contains and the amount that is present. **The label of any preparation for aches, pain, and colds should be carefully studied.**

F. FEAR OF THE DENTIST OFTEN PREVENTS MUCH-NEEDED CARE.

An occasional friendly visit to the dentist when no dental care is needed would do much toward alleviating fear on the part of the child. Likewise, frequent and regular examinations by the dentist, beginning when the child is small, may prevent later painful dental experiences. It is the responsibility of the teacher at every opportunity to influence the child to regard his dentist as a friendly health counsellor.

## EDUCATIONAL ACTIVITIES

Practical suggestions will be found in the Appendix.* The following activities may also be made educational projects for teaching dental health:

Lessons centering around the child's interest in his own teeth, the common experience of toothache, the loss of a tooth by some child, or a visit to the dentist

Discussions before and after regular dental examinations of school children. Preliminary explanation allays fear and augments the educational experience of the examination

Talks given by representatives of the local dental association. Teachers would do well to invite the dentist to visit the school annually

Dramatization of a visit to the dentist, including the making and keeping of the appointment

Use of models and preparation and use of charts illustrating

- Classification of teeth
- Composition of teeth
- Development of teeth
- Need of protective foods
- Tooth-brushing technique
- Locations susceptible to cavity formation
- Progress of decay
- Progress of pyorrhea
- Results of the loss of teeth
- Results of faulty mouth habits

*Appendix, page 211.

Carving models of teeth out of soap

Explanation of the use of dentists' equipment and materials

Use of posters, booklets, songs, essays and poems

Personification of teeth by use of puppets

Provision of toothbrush for each child

Making toothbrush holder for each member of the family

Home-made preparation of tooth powder*

Chart the actual results obtained in the "Better Teeth Campaign"

The above suggestions for teaching dental health are based upon the booklets "Dentistry and Public Health" and "Your Child's Teeth," which may be obtained by writing the State Division of Public Health.

## SUGGESTED REFERENCES AND MATERIALS

Colorado State Division of Public Health, State Office Building, Denver 2.

Free reference materials, loan packets, and moving picture films are available.

"Manual on Dental Health for School Teachers," free.

American Dental Association, Bureau of Public Relations, 212 E. Superior St., Chicago, Ill.

*Refer to Appendix, page 212.

Books, pamphlets, charts, and moving picture films. Write for a list of dental education material. Especially good are:

"Teeth, Health and Appearance," 1940. 48 p. $1.50. A large, permanently bound book containing photographs and beautifully colored plates of common dental conditions.

"Your Child's Teeth," Vivian V. Drenckhahn and C. R. Taylor, 1940. 40 p. 10 cents.

"Dentistry and Public Health," Dr. H. N. Bundeson, 1933. 30 p. 10 cents.

Dental Health Charts, No. 53, $1 per set. A set of eight large charts with excellent colored illustrations.

A Practical Tooth Brushing Chart, No. 45, 25 cents.

National Dental Hygiene Association, Inc., 934 Shoreham Bldg., Washington 5, D. C.

Posters, pamphlets and other materials.

"Facts About Teeth and Their Care," 1942. 16 p. 10 cents.

"Dental Health," a quarterly magazine published for teachers, nurses, dentists, and lay people. Subscription $1 a year.

National Education Association, 1201 16th St., N. W., Washington, D. C.

"Mouth Health of School Children," Joint Committee on Health Problems in Education, 1938. 68 p. 25 cents.

Cleveland Child Health Association, 1001 Huron Road, Cleveland, Ohio.

"Preparing Teeth for School." 5 cents.

Many commercially-sponsored materials may be secured free or at low cost. See Appendix, page 235, for list of agencies.

# EYE HEALTH

## The Sympathetic Teacher Feels a Responsibility for Eye Health of Pupils

The teacher has a definite responsibility for safeguarding the eyesight of pupils and for teaching them how to protect and conserve their own vision. This presupposes that the school directors have fulfilled their responsibility for providing physical facilities and determining policies essential for a good eye health program.

In order to be complete and effective, the eye health program should include the discovery of eye defects; follow-up care of children with eye trouble; maintenance of an environment for the safe, comfortable and efficient use of the eyes; and instruction in the proper care of eyes. Necessary adjustments should be made in the educational program for children with poor vision.

### I. Discovery of Eye Defects

Educational methods rely largely on the visual sense, therefore good sight is an important factor in school progress. Some visual defects originate before birth or develop in early childhood, while others occur later in the school years. Early discovery and treatment are important factors in conserving vision. A careful examination of the eyes of all children before entering school, followed by such treatment as is indicated, would save many children from beginning school with a handicap.

Since such examinations by qualified specialists are not universally available, it has been necessary to develop procedures by which children in need of eye examinations can be selected. This screening is best done by means of observation and simple tests of vision by teachers.

## A. OBSERVATION BY THE TEACHER

Equally as important as testing vision for the discovery of eye difficulties is the teacher's observation of how the child uses his eyes, how he reacts to various visual activities, and what he complains about. Such observations should take into consideration the following main points:

1. Health history
   a. Complaints of headache, dizziness, nausea, sensitivity to light or blurred vision
   b. Illnesses, including communicable diseases
   c. Normal childhood activities
      Does he play easily with other children in games requiring (1) Distant vision, or (2) Near vision?
      Does he progress normally in school activities requiring reading and writing abilities?
2. Appearance
   a. Red or swollen eyelids, crusts among eyelashes, or styes
   b. Watery or bloodshot eyes
   c. Apparent lack of coordination in directing the gaze of the two eyes

3. Behavior
   a. When engaged in ordinary activities, the child may
      - Attempt to brush away blur
      - Rub his eyes often
      - Cry frequently
      - Be irritable over work
      - Have frequent fits of temper

   b. When looking at distant objects, the child may
      - Hold his body tense
      - Screw up his face
      - Thrust his head forward in order to see

   c. When reading, the child may
      - Blink continually, screw up his face, shut or cover one eye, tilt his head to one side, or tend to look cross-eyed
      - Hold his book far away from his face, hold his face close to the page, or tend to make frequent changes in distance at which he holds his book
      - Tend to lose the place on the page
      - Make apparent guesses by quick recognition of part of a word in easy reading material
      - Confuse letters such as o's and a's; e's and c's; n's and m's; h's, n's and r's; and t's and f's

d. When engaged in class activities, the child may

Be inattentive and uninterested during reading lessons, during lessons using wall charts, maps or blackboards, or during class discussions of field trips

Have poor alignment in penmanship or drawing

## B. VISION TESTS BY THE TEACHER

Testing vision is important not only as a means of discovering children with visual difficulties, but also as an activity in the health teaching program. A vision test should be an educational experience and should be an integral part of the teacher's eye health instruction.

1. Frequency of tests

a. Annual tests are necessary to detect the visual ability of new pupils and to observe changes of vision in the older ones. The Colorado law states that the teacher or principal of every public school should test the sight of each pupil during the first month of the school year.*

b. If a child has had a communicable disease, eye infection or eye injury, or if his general health or nutrition is poor, his vision may need testing again during the school year.

*Colorado School Laws—1941—Section 581.

2. Type of test

   a. For accurate testing it is suggested that Snellen Charts be used, in accordance with the recommendations of the National Society for the Prevention of Blindness. The Snellen test measures the visual acuity; i. e., the ability of the eye to perceive a clear image of objects in the direct line of vision.

   b. Two types of Snellen charts may be used in schools—Symbol E or Letter charts.

3. Testing procedures
   Suggestions and instructions for giving vision tests are included in the Appendix, page 217.

## II. Follow-up Care of Children Suspected of Having Eye Trouble*

### A. THE TEACHER'S PART IN SECURING EYE EXAMINATIONS AND TREATMENT

1. After giving vision tests and recording observations,† the teacher should make a list of children with questionable eye conditions.

   This list should include:

   a. Children who consistently present any symptoms of visual disturbances regardless of the results of vision tests

   b. Children who have a visual acuity of 20/40 or less in either eye or both eyes

*Refer to section on Community Resources, page 103.
†Refer to Appendix, page 223.

c. Children who, year after year, present a visual acuity of 20/30, even without symptoms of eye trouble

d. Children whose eyes appear to cross either occasionally or continuously, or apparently fail to coordinate in any other manner

2. Before completing this list, on another day, the teacher should retest the children suspected of having eye trouble to verify previous observations.

3. It is **not** the prerogative of a teacher or nurse to say that a child needs glasses or other treatment—that is for the physician to decide.

B. THE TEACHER'S SUPERVISION OF THE CHILD WITH POOR VISION

1. Record information concerning child's eye condition, including dates of eye examinations

2. See that child follows recommendations of the eye physician, especially regarding the wearing of glasses

3. Note any changes in child's behavior or in his progress in school

4. Watch the condition of pupil's glasses, and teach child how to care for them. Teach why it is important to keep glasses clean, how to prevent scratching lenses, why frames should

be kept straightened and other repairs made immediately. Show how scratched lenses impair vision. Explain that spectacle lenses need to be kept in proper position before the eyes in order to give the prescribed correction of vision, otherwise they may be worse than not wearing glasses at all. This is especially true of round lenses that may become loose and turn in the frames.

5. Assist the child to conserve eyesight by the following means:

   a. Give him a seat where he has as good light as possible.

   b. If necessary, seat the child near the blackboard or provide a written copy of the material which is on the blackboard.

## C. SPECIAL INSTRUCTION AND SIGHT-SAVING AIDS FOR CHILDREN WITH EXTREMELY POOR VISION

There are many children whose vision is so poor, even with the maximum correction by glasses, that their physicians advise against routine school work. Some city school systems have special sight-saving classes. Smaller communities might consider the following possibilities:

1. The local school might provide special individual instruction for the child.

   a. Sight-saving books and other materials might be secured. Teachers may give

special instruction to these children during or after school hours.

b. Information is available from the State Department of Education.

c. Vocational guidance should be made available to visually handicapped children.

2. The child might be eligible to attend the Colorado School for the Deaf and Blind at Colorado Springs.*

## III. Maintenance of an Environment Conducive to Good Eyesight

It is very important that an environment conducive to good eyesight be maintained in the school at all times. It is essential that teachers be alert and conscientious in maintaining good lighting and in preventing eye difficulties or eye injuries by such means as the following:

### A. ADJUSTMENTS IN SCHOOL ENVIRONMENT

Adjustment and provision of adequate lighting and seating should be made to meet individual needs for safe, comfortable, and efficient use of the eyes.†

### B. ELIMINATION OF HAZARDS TO THE EYES‡

1. School building and grounds should be inspected and watched carefully to see that

a. Measures are taken to prevent falls

*Refer to section on Community Resources, page 115.
†Refer to section on Environment, pages 121 and 123.
‡Refer to section on Accident Prevention and First Aid, page 138.

b. Devices are used to safeguard the eyes when necessary during activities such as shopwork and games

c. Hooks for wraps are placed above eye level but within the child's reach

d. Cupboard doors are kept closed

e. Playground equipment and toys are safe and in good repair

2. Children should be cautioned regarding the danger of

a. Using sharp or pointed objects

b. Throwing objects which might injure eyes, such as snowballs, stones, or pointed toys

c. Handling fireworks or explosives

d. Shooting air rifles and firearms

C. PROVISION AND USE OF VISUAL MATERIALS

Planning of an educational program and selection of educational material should be done with due regard to the eye needs of the children.

1. Children's eyes, like the rest of their bodies, are growing and developing and the eyes are affected by the general health. Thus there is need when planning the school program and the educational material to consider the needs not only of the average child, but also of the child with a temporary or permanent eye difficulty. Points to be considered are:

a. The condition of the child's eyes

Children's eyes are not well adapted for prolonged periods of close eye work. This is particularly true in the early school years. Therefore, periods of close work should alternate with activities not requiring the use of the eyes for near work. Children who have been ill should not be encouraged to make up school work through prolonged periods of study either at home or in school.

b. Selection of visual materials for eye comfort and efficiency

Basically, all reading material, maps, etc., should be on paper which is free from gloss and in print that is sharp and clear. In addition, size of the print is an important factor, especially for young children and for those with low vision.

## IV. Instructions in the Proper Care of Eyes

In addition to phases of the eye health program that have been described, there are a few other facts which should be emphasized during classroom instruction. Children should have a knowledge of the structure and function of normal eyes; of ways to protect eyes; of indications for eye examination and treatment; and of sources where authentic information can be secured concerning eye care.

## A. PROFESSIONAL CARE

1. It is important that the children with eye difficulties receive the best care possible. The eyes are often affected by abnormal conditions in other parts of the body and therefore cannot be adequately cared for unless the whole body receives good care. Often dietary deficiencies may cause eye trouble that can be cleared up by correcting the diet.

   The treatment of eyes should be entrusted only to a qualified medical physician, preferably one who has made a special study of the eye itself and who is therefore properly called an eye physician or ophthalmologist. An eye physician is a specialist in optical defects, diseases and surgery of the eyes.

2. Many persons who refer to themselves as "eye specialists" are only skilled in measuring refractive errors and in grinding lenses.

## B. HOME CARE

1. Proper care in the removal of a foreign body from the eye is important.*

2. Many eye infections may be prevented by keeping dirty fingers, soiled handkerchiefs, towels or other articles away from the eyes. The teacher should be very suspicious of inflamed eyes, especially when the reddening is accompanied by a discharge, with dry

*Refer to section on Accident Prevention and First Aid, page 147.

crusts on the edge of the lids. This condition may indicate "pink eye"—an infectious condition.* Children showing such signs should be referred to their family physician for diagnosis and excluded from school until the physician certifies it is safe for them to return to school.

3. Use of home remedies or patent medicines, unless prescribed by a physician, should be discouraged. Self-medication may delay medical treatment of eye conditions until serious complications have developed or may delay diagnosis of diseases in other parts of the body that are causing the eye symptoms.
4. Sun glasses of inferior quality may be harmful to the eyes. If the child's eyes are affected by bright sunlight or glare from water and snow, his physician should be consulted regarding the advisability of wearing sun glasses and the kind to be used.

## EDUCATIONAL ACTIVITIES

Demonstrate structure of eye by use of models or charts.

Compare the eye to a camera.

Demonstrate the effect of light and darkness on size of the pupils of the eyes.

Make a notebook on vision.

*Refer to Information Regarding Communicable Diseases, page 189.

Study the environment of home and school for safety and lighting*

Test for color blindness.†

Read biographies of famous blind people such as Helen Keller, Alec Templeton, or the poets Milton and Homer.

Find out about "Seeing-eye Dogs."

Secure samples of Braille and discuss sources of Braille books and magazines for the blind. Learn what "Talking Books" are and where they may be obtained.

## SUGGESTED REFERENCES AND MATERIALS

Colorado State Division of Public Health, State Office Building, Denver 2.

Loan packets of literature from various agencies.

National Society for the Prevention of Blindness, Inc., 1790 Broadway, New York, N. Y.

Pamphlets, motion picture and talking slide films, and other educational materials.

National Education Association, 1201 16th St., N. W., Washington, D. C.

"Conserving the Sight of School Children," Joint Committee on Health Problems in Education, with the cooperation of the National Society for the Prevention of Blindness, 1935. (In process of revision.) 35 cents.

*Refer to section on Environment, pages 121 and 138.
†See Appendix, page 224.

Illuminating Engineering Society, 51 Madison Ave., New York, N. Y.

"American Recommended Practice of School Lighting," The Society of the American Institute of Architects, Sectional Committee, 1938. 60 p. 25 cents.

American Medical Association, 535 North Dearborn St., Chicago, Ill.

National Safety Council, Inc., 20 Wacker Drive, Chicago, Ill.

American Foundation for the Blind, Inc., 15 W. 16th St., New York, N. Y.

Seeing-Eye Dogs, Trained by Seeing-Eye, Inc., Morristown, N. J.

Hygeia, August, 1935, "Trained Dogs Guide the Blind," R. Henderson.

Reader's Digest, June, 1937, "Good Companions," A. Wolcott.

Ladies' Home Journal, September, 1937, "Seeing-Eye Dogs," B. Tarkington.

National Health Series, Funk and Wagnalls, New York, N. Y.

"What You Should Know About Eyes," 1936, 80 p. 40 cents.

Also available are commercially-sponsored educational materials, some sources of which are listed in the Appendix, page 235.

# EAR HEALTH

## The Interested Teacher Endeavors to Conserve the Hearing of Pupils

The teacher's program for the conservation of hearing should emphasize both preventive and educational measures. Preventive measures include detection of ear and hearing difficulties in order that children may benefit from early medical treatment and perhaps be spared further hearing loss. Educational measures include instruction of all children in ear health and special education for those children who have impaired hearing.

### I. Detection of Hearing Difficulties

#### A. STANDARD HEARING TESTS

Such tests are better guides in finding children who have hearing difficulties than are ordinary observations by teachers. The teacher may give or assist in giving these hearing tests.

Annual tests are desirable to observe changes in hearing of pupils. The Colorado law states that school authorities should test all pupils for hearing defects during the first month of each school year.* If, during the school year, a child develops signs which may indicate deficient hearing, another test should be given because children may acquire hearing handicaps as a result of colds, ear infections, or acute communicable diseases.

*Colorado School Laws—1941—Section 581.

1. Types of tests

   a. Audiometer test

      The audiometer test is undoubtedly the most accurate method, provided that the instrument is in perfect condition, the children are tested under standardized conditions by an adequately trained person, and at least two retests are given to each child whose initial tests seems to show hearing loss.

   b. Sperry test

      The Sperry tester is an instrument resembling a stop watch that can be easily operated. This test is more accurate than the whisper test.

   c. Whisper test

      The whisper test should be used only if an audiometer or a Sperry tester is not available.

2. Testing procedures

   a. Suggestions and instructions for giving hearing tests are included in the Appendix, page 225.

   b. If further assistance is needed in testing, the teacher may contact the local public health nurse, the State Department of Education, or the Colorado School for the Deaf and Blind.

## B. OBSERVATIONS BY THE TEACHER

Symptoms or information known to the teacher are important in the discovery and care of children with deficient hearing. This information is helpful to teachers, parents, public health nurses, and physicians in recognizing the need for medical care and in understanding the psychological and emotional problems of the child.

Children should be encouraged to tell the teacher of any ear or hearing difficulties. The teacher should also be observant of the following conditions:

1. Signs which may indicate deficient hearing:*
   a. Failing to answer when spoken to, misunderstanding others' conversations, the incorrect answering of questions, or the constant questioning, "What?"
   b. Requesting repetition of directions frequently and making numerous mistakes in carrying them out
   c. Watching others before beginning work
   d. Turning the head to one side when addressed
   e. Indicating by facial expression that he is bewildered or is not aware of all that is going on about him

*Adapted from "Health Education," N.E.A. and A.M.A., page 235.

f. Being retarded in school or making poor progress, especially in subjects taught orally. Such a child may be excellent in manual studies

g. Having defective speech, improper forming of sound elements, or unnatural pitch of the voice—high, low, or monotonous tone

2. Possible causes of hearing loss about which children should be cautioned:

a. Putting foreign bodies in the ear

b. Blowing the nose violently

c. Boxing the ears

d. Getting water in the ears if the drum membrane has been ruptured

e. Using drugs promiscuously

The auditory nerve is very sensitive to drugs. Many hearing ailments are the result of self-treatment and misuse of drugs

f. Overstimulating the auditory nerve by continued or loud noises

3. Conditions contributing to hearing loss which should be noted:

a. Hardened wax or foreign bodies in the ear

b. Enlarged or diseased tonsils and adenoids

c. Frequent colds or sore throat

d. Dental abscesses, pyorrhea, and impacted teeth

e. Earache, discharge or odor from ear

f. Communicable diseases, especially scarlet fever, measles, diphtheria, whooping cough, mumps, and meningitis

## II. Follow-up Care of Children with Ear Trouble*

Hearing tests, no matter how accurate they are, have little value unless complete preparations have been made for the follow-up program before starting routine tests in schools. An effective follow-up program should result in adequate medical treatment and school adjustment of children found to have deficient hearing.

The chief objective of the follow-up program should be to get the child into the hands of a physician for diagnosis and prognosis. Ear disorders are often difficult to treat and sometimes become progressively worse. They respond more readily to treatment in the early stages. Many cases of deafness could have been prevented if adequate and prompt medical care had been given to children with ear trouble.

### A. THE TEACHER'S PART IN SECURING EXAMINATION AND TREATMENT

1. The teacher should record results of hearing tests and signs of hearing difficulties on the health record. Children's reports and any

*Refer to section on Community Resources, page 103.

history of illnesses or conditions which might cause hearing loss should also be entered on the record so all findings could be correlated.

2. The teacher should make a list of children suspected of having hearing loss.

3. If a hearing test has been given, it is usually better that the teacher does **not** quote the suspected degree of hearing loss to the child or parent, as these findings often cannot be confirmed by the examining physician.

B. THE TEACHER'S SUPERVISION OF CHILDREN SUSPECTED OF HAVING DEFICIENT HEARING

1. Information should be recorded concerning each child's ear condition

   a. Physician's recommendations concerning child's ears and hearing which would be helpful to teacher or nurse. These might include recommendations concerning hearing aids, lip reading or other special measures. The approximate date of examination should be noted.

   b. The child should be observed for changes in his ear condition or hearing loss. Also, observations of the child's behavior and adjustments to school situations should be recorded.

2. The child who has been diagnosed by his physician as having deficient hearing can be aided in the following ways:

a. The child should know that he has hearing loss, yet he should not receive undue attention. He should be given a chance to develop self-reliance and poise.

b. The child should be seated near the teacher when instruction is being given.

c. The teacher should stand so that his face is clearly seen by the child and should speak plainly.

d. The child should be encouraged to watch the faces of those talking to him and to study lip reading.

e. The child should be encouraged to use a mirror in order to familiarize himself with the formation of words.

f. The use of the telephone should be encouraged, since many people with deficient hearing can hear better over the telephone. This means of conversation helps to prevent queer voice habits.

g. The child should be taught to explain his hearing difficulty, so that he will not give a false impression of stupidity or inattention.

## C. SPECIAL EDUCATION FOR CHILDREN WITH DEFICIENT HEARING

Children who are handicapped by hearing losses usually need special instruction and consideration in order to make satisfactory adjustments.

The type and amount needed will depend upon the degree of hearing loss handicapping each child and the facilities the school system affords. Plans for assisting children with deficient hearing might include:

1. Special provisions by the local school
   a. Where there is a large enough group to make it feasible, special classes may be instituted in lip reading and speech training.
   b. Teachers might attempt to give special instruction during school hours or after the rest of the class has been dismissed.
   c. Vocational guidance should be available to all handicapped children.
2. Consultant service from the State Department of Education
3. Eligibility to attend the Colorado State School for the Deaf and Blind at Colorado Springs*

III. **Instruction in the Conservation of Hearing**

Children should be helped to acquire factual knowledge and to develop desirable attitudes concerning ear health and the conservation of hearing. They should understand the structure and function of normal ears, proper care of ears, the purpose of hearing tests, and conditions that indicate need for medical examination and treatment.

*Refer to section on Community Resources, page 115.

## A. CARE OF EARS

1. Children should know how to clean their ears safely. Nothing smaller than the finger covered with a clean washcloth or handkerchief should be put in the ears. Children should be cautioned against use of objects, such as toothpicks or hairpins, which might cause injury or infection of the ears. A physician should be consulted regarding hardened wax that cannot be reached by the finger.

2. The proper way of blowing the nose should be explained to children. The nose should be blown gently without closing the nostrils, so that bacteria won't be forced up the Eustachian tube to the middle ear. Special care should be taken when the nasal passages are swollen due to a cold.

3. The dangers of home treatment and use of drugs in the ears without medical advice should be emphasized. Some type of medication and treatment used by well-intentioned families aggravate rather than relieve ear trouble. Early medical care for earaches and discharging ears is important. Undue scarring of the ear drum and resulting impairment of hearing can often be prevented by calling a physician soon enough so that the drum membrane can be lanced before it ruptures as a result of middle ear infection. A straight incision heals with less scar tissue

than a round hole caused when internal pressure breaks the drum.

## EDUCATIONAL ACTIVITIES

Demonstrate structure of the ear by use of models or charts.

Discuss effect of altitude on hearing, and reason why the ears "pop."

Demonstrate toy drum and compare with middle ear or drum.

Discuss the transmission of sound through air, water, and the ground.

Discuss devices for detecting, recording, and amplifying sound.

Discuss communicable diseases that sometimes affect hearing.

Discuss the difference between deafness and being hard-of-hearing.

Discuss the reason why deaf children need to be taught how to talk.

Discuss the types of hearing aids and the value of their use. If possible, have a hearing aid demonstrated.

Read articles on lip reading. Children might try to read each other's lips.

Study lives of famous people who were deaf or who lost their hearing, e. g., Helen Keller and Beethoven.

Discuss and list kinds of work deaf people can do.

Write to the American Society for the Hard of Hearing and ask for a list of its publications.

## SUGGESTED REFERENCES AND MATERIALS

Colorado State Division of Public Health, State Office Building, Denver 2.

Loan packets of reprints and pamphlets from various agencies.

American Society for the Hard of Hearing, 1537 35th St., N. W., Washington, D. C.

A list of publications, posters, and moving picture films may be secured on request.

Volta Bureau, 1537 35th St., N. W., Washington, D. C.

Controlled by the American Association to Promote the Teaching of Speech to the Deaf. Information available on all phases of deafness, except medical problems. Library material may be borrowed by teachers. Free and low-cost pamphlets and reprints.

American Medical Association, 535 North Dearborn St., Chicago, Ill.

Reprints and pamphlets.

"Hearing Problems in Education," Horace Newhart, M.D., Reprint from Journal of the A. M. A., September 11, 1937. 6 p.

U. S. Public Health Service, Washington, D. C.

"Reports of the National Health Survey on Hearing Studies," three bulletins, 1935-6.

National Education Association, 1201 16th St., N. W., Washington, D. C.

"Journal of Exceptional Children," published eight times a year by International Council for Exceptional Children, a department of the N. E. A.

"The Lip Reader," three issues yearly, Department of Lip Reading, N. E. A.

National Health Series, Funk and Wagnalls, New York, N. Y.

"Hear Better," Hugh Grant Rowell, 1937. 83 p. 40 cents.

Other commercially-sponsored materials may be secured free or at low cost. See Appendix, page 235, for sources.

# MENTAL HEALTH

## The Understanding Teacher May Do Much to Control the Mental and Emotional Health of Pupils

Every teacher recognizes that school environment and the daily activities of the school room may cause or prevent, accentuate or lessen many behavior problems. Furthermore, physical and mental health are so closely related that whatever the teacher does to aid physical health is of direct assistance in promoting the mental health of pupils. Similarly, improvement in mental health is reflected in better physical health. The highest aim of the understanding teacher should be to assist the parents of the community in developing children with well-integrated personalities.

### I. Problems Relating to Mental Health Which the Teacher and School Authorities Should Consider

#### A. TEACHER'S PERSONALITY DEVELOPMENT AND ADJUSTMENT

1. The personality traits of a teacher have a very positive effect on children in the classroom. Teachers with the best influence on children possess most of the following characteristics:

   Evident love of teaching; pleasant disposition; ability to attract children and adults; faculty of winning confidence; in-

terest in children's activities and in general community affairs; awareness of the personality and background of each child; and ability to encourage children to take responsibility, to make suggestions, and to contribute to school life.

If the teacher is nervous, imperious, uncertain or moody, this attitude is reflected in the behavior of pupils and affects their mental development. The teacher with well-modulated voice, a business-like manner, and an encouraging smile achieves best results from children.

2. The way a teacher adjusts to the community largely determines his influence over the pupils in his school. He must exhibit such health habits and maintain such personal standards as he wishes to inculcate in his pupils.

B. THE CHILD'S PERSONALITY DEVELOPMENT AND ADJUSTMENT

1. The normal child will generally adjust to conditions in school without difficulty, though every child will show some deviations from normal behavior for short periods of time.

A healthy child will be active, alert, cooperative, and interested in the general activities of the schoolroom or the playground.

2. The abnormal child exhibits certain persistent behavior traits that are definitely antisocial. This is the child who most needs careful study and special understanding to overcome abnormal behavior traits and to become a well-adjusted personality.

   In this group of abnormal or maladjusted children are those who:

   a. Enjoy the suffering of others
   b. Show overt behaviors regularly, such as lying, stealing, and cheating
   c. Demonstrate recessive or introvert behavior traits
   d. Manifest sex disturbances
   e. Persist in bullying and teasing other children
   f. Do not play well with other children; are constantly quarrelsome
   g. Demand constant attention
   h. Are over-dependent
   i. Are unduly tense
   j. Are persistently destructive
   k. Are regular truants
   l. Show a fear-ridden attitude
   m. Revert to or retain babyish habits, such as thumb-sucking, self-wetting, and soiling.

n. Escape habitually into day-dreaming, turning to anti-social activities instead of playing with other children.

The teacher is reminded that the child who gives the least trouble may need assistance in social adjustment. Such cases are frequently overlooked because the teacher's attention is taken up with the boy or girl who disturbs the order of the classroom.

II. **Suggestions Which the Teacher Might Use**

A. CREATE A HAPPY SCHOOL ENVIRONMENT

1. The maintenance of a happy classroom atmosphere is conducive to study and cheerful work. A business-like attitude, seasoned with a good sense of humor, develops cooperation and secures best results in a classroom.

The teacher should try to avoid tension in the classroom. Many times all that is needed to clear up misunderstandings is a private conference with a child, or segregation of the child from the group until he realizes his responsibility in relation to other people. The teacher might question himself to see if the difficulty lies with him rather than with the child.

2. Arrangement of the classroom is important to secure comfort for all. Attention should be given to such factors as seating, heating,

lighting, and ventilation.* Orderliness, attractiveness, simplicity in decorations or exhibits of work, and a well-organized, smoothly-running daily program react most favorably on the child's mental state.

A child coming from a tidy, cheerful, well-organized home may be definitely disturbed by school surroundings that are badly arranged and not so well regulated as his own home. On the other hand, a child coming from an unattractive, discordant, poorly-managed home is definitely helped by attractive, peaceful, and stimulating school surroundings.

B. SECURE PARTICIPATION OF ALL PUPILS IN THE SCHOOL PROGRAM

1. School programs should be so planned that there will be maximum participation of every child as far as his physical and mental ability will permit.
2. Every child should be made to feel that he is needed and wanted in his school.
3. Every child should, under the guidance of the teacher, be given some freedom to make decisions and to take responsibilities in the classroom and on the playground.
4. Home work should be balanced according to the age, extra-curricular activities and home

*Refer to section on School Environment, pages 121 and 126.

duties of each child. Participation of pupils in a school program which has been carefully planned by the teacher affords a positive opportunity to develop citizenship and co-operation.

C. MAKE REPORTS THAT ARE HELPFUL, AND EXERCISE GREAT CARE IN GRANTING AWARDS

1. Reports to his parents of a child's work are most constructive when they are statements of the child's own progress and of his strong and weak points.
2. Praise or reward for personal improvement should be based on evaluation of the child's own abilities rather than comparison with others in the group.
3. Perfect attendance awards should be avoided. A child may insist on being in school when, for his own good or to prevent spread of contagion, he should stay at home.

D. USE ALL POSSIBLE MEANS TO HELP CORRECT MALADJUSTMENTS

Sympathetic interest and a keen desire to understand and help children are the bases for correcting all maladjustments. Techniques and procedures that the sympathetic teacher will use with success include the following:

1. Analyze conditions which might be the cause of the child's behavior, such as school en-

vironment and routine, teacher's attitude toward the child, other children's reactions to the child, and conditions in the child's home.

2. Employ intelligence, aptitude, personality and other tests when they are available. These should be given and interpreted by specially trained persons, as otherwise great harm may be done.
3. Encourage examinations and corrections of physical defects that might affect the child's mental health.
4. Refer the child to some child guidance clinic or institution if unable to work out problems locally. In some localities there are child welfare workers who can assist. The public health nurse, a minister, or some other persons interested in child welfare may be of assistance to the teacher in the solution of the problem.*

III. **Knowledge of the Home Is Helpful in Understanding a Child's Personality**

A. The teacher will understand a child better and become more interested in him if he knows the child's home and family life. Similarly, the members of the family will be more keenly interested in school life if they know the teacher, the program, and the reasons for various activities. Parents may better understand school life

*Refer to section on Community Resources, page 103.

through the lunch programs, parent-teacher groups, entertainments, or visits with the teacher.

B. Some points to consider in the development of a child's personality:

1. Special attention should be given to children who are pampered or neglected, over-privileged or under-privileged. Such children need help to adjust to the school program.
2. Children often present problems because they come to school hungry, fatigued, or over-stimulated.
3. In-school and out-of-school activities should not be carried to excess, and will be determined in large measure by the ability of the individual child.
4. Changes in a child's environment require understanding. When a child changes from home environment to school environment, from one school to another, or even from one grade to another, it requires understanding and cooperative planning between parents and teachers. Some children adjust to a changed environment much more quickly than others. Home conditions and hereditary traits sometimes govern these adjustments. It is especially necessary for teachers and parents to work together to smooth these rough places in a child's life.

IV. **Leadership the Teacher May Give in Development of Community Mental Health***

A. The teacher, in his position, may be a very important factor in developing understanding and tolerance between groups whose differences of race, creed, or color frequently cause serious maladjustments.

B. The teacher should be aware of the facilities in a community for diagnosis, treatment, and supervision of the maladjusted child.

C. The teacher may encourage local agencies to develop facilities that will aid the normal mental and emotional growth of children. These might include improvement of facilities, amelioration of squalid and depressing conditions, and the inauguration and expansion of health programs.

## EDUCATIONAL ACTIVITIES

Have parties or entertainments to develop good manners and social ease. Include both boys and girls.

Hold hobby shows or exhibitions. List some of the most interesting hobbies and point out how they may benefit and enrich a person's life and personality.

Plan a pet parade or show. Discuss the child's responsibility for care of the pet, and the effect on the child's character of the companionship and affection shared with the pet. Growth and development of animals might be studied.

*Refer to section on Community Resources, page 103.

Stimulate recreational activities—such as group games, school and community singing, rhythm bands and school orchestras, and various types of dancing.

Encourage sports that can be continued throughout life—such as fishing, hiking, picnicking, swimming, skating, and other outdoor activities.

Foster pupil participation in youth organizations that are character-building.

Emphasize the value of religion.

Dramatize stories or books in which the principal character illustrates personality development for good or bad.

List the personal characteristics or qualities that are most likeable and admirable in people. Illustrate with famous or well-known persons.

## SUGGESTED REFERENCES AND MATERIALS

National Committee for Mental Hygiene, 1790 Broadway, New York, N. Y.

Pamphlets and other educational materials for public and professional use.

"Understanding the Child," a magazine for teachers, published quarterly, 50 cents a year.

National Education Association, 1201 16th St., N. W., Washington, D. C.

Books, pamphlets and other educational materials.

"Mental Health in the Classroom," Department of Supervisors and Directors of Instruction, 1940. 304 p. $2.00.

"Mental Hygiene in the Classroom," Joint Committee on Health Problems in Education, 1939. 70 p. 15 cents.

"Fit to Teach," Department of Classroom Teachers, Ninth Yearbook, 1938. 276 p. $1.00.

"Journal of Health and Physical Education," published monthly except July and August by American Association for Health, Physical Education and Recreation, a department of the N. E. A.

U. S. Office of Education, Washington, D. C.

Pamphlets and other educational materials on various phases of mental health.

Children's Bureau, U. S. Department of Labor, Washington, D. C.

"Guiding the Adolescent," D. A. Thom, M.D., Bureau Publication No. 225, 1933. 94 p. 10 cents.

"Child Management," D. A. Thom, M.D., Publication No. 143, 1937. 107 p. 10 cents.

U. S. Public Health Service, Washington, D. C.
Materials on mental hygiene and sex education.

American Social Hygiene Association, 1790 Broadway, New York, N. Y.

Book lists, pamphlets and other materials on sex education and social hygiene.

American Medical Association, 535 North Dearborn St., Chicago, Ill.

Among other publications is a series of well-written booklets on sex education, by Thurman B. Rice, M.D., 25 cents each pamphlet.

National Recreation Association, 315 4th Avenue, New York, N. Y.

Bulletins and materials on play and recreation. "Recreation," monthly periodical, $2.00 year.

Leisure League of America, 1309 W. Main Street, Richmond, Va.

Series of booklets on all kinds of hobbies. List of publications.

Also available are commercially-sponsored educational materials, some sources of which are listed in the Appendix, page 235.

## COMMUNITY RESOURCES

### The Cooperative Teacher Uses the Community R...

In order to secure maximum health benefits for school children, the teacher should keep continuously informed concerning services available from local, state and national agencies. Close cooperation with these agencies is the basis of an effective school health program.

I. **Follow-up Measures for Care of Children Needing Medical, Dental, or Other Attention Will Vary in Each Community**

A. IN AREAS WHERE PUBLIC HEALTH NURSING SERVICE IS AVAILABLE

1. Problems concerning children's mental or physical health should be referred to the public health nurse for advice and direction.

2. Parents may be invited to come to school for a conference with the nurse and teacher, or a home visit may be made by the nurse. It is primarily the responsibility of the public health nurse to assist needy families in the discovery and use of community facilities for remedial care and treatment. The teacher should cooperate with the nurse in encouraging the child and the family to seek attention promptly and to follow recommendations. Parents should be encouraged to do

everything possible to raise the child's general health level and to increase his body resistance, if remedial care and treatment cannot be arranged promptly.

3. The nurse and teacher should hold conferences at least twice a year to discuss the general school health program, to make such plans for follow-up care as are necessary, and to check results.

B. IN AREAS WHERE PUBLIC HEALTH NURSING SERVICE IS NOT AVAILABLE

1. The teacher should have a conference with parents of children who do not appear to be well or who seem to have physical defects. Results of observations and of any tests that have been given should be discussed; the teacher should learn what the family attitude is, what has been done, or what may be planned.

2. The teacher may suggest examination by the family physician or dentist if the chid is not already under professional care. Parents who do not feel that they can afford private treatment should be encouraged to discuss their problem with their family physician or dentist, who may refer them to public or private sources of treatment if it seems advisable. Families who do not have a family physician or dentist and who are receiving public aid

may be referred to the local department of public welfare. Requests for assistance with maladjusted children may be submitted to the welfare department where child welfare services are available.

3. The child's physician may advise special education or limited activities for a handicapped child. Assistance may be secured from the superintendent of schools, or consultant service may be requested from the State Supervisor of Special Education.
4. If remedial care and treatment cannot be arranged for promptly, everything possible should be done to raise the child's general health level and to increase his body resistance.

## II. Health and Social Welfare Agencies Vary in Each Community*

Some health and social welfare agencies are official, maintained through public taxation, while others are private, supported by voluntary contributions; some do health work only, while others include health services as part of their general programs.

### A. COMMUNITY AGENCIES HELPFUL TO TEACHERS MAY INCLUDE THE FOLLOWING

1. Official public health agencies
   a. A full-time city, county or district health department will include on its staff a full-

*For addresses, see reference lists at end of sections.

time medical health officer, public health nurses who are graduate registered nurses with special public health training and experience, one or more sanitarians with special training and experience in community sanitation, and one or more clerical workers.

Because programs of these departments are flexible to meet changing needs, the teacher should keep informed of their services.

(1) Some services are planned especially for children as a part of the school health program. They may include:

(a) Consultant and follow-up services by public health nurses

(b) Medical examinations

(c) Dental health work

(d) Services for preschool children

(e) Assistance for crippled children

(2) Some services are planned for the general health of the community. These usually include:

(a) Communicable disease control, including measures to control venereal disease and tuberculosis

(b) Services for maternity patients, infants, and preschool children

(c) Limited services for acute and chronically ill persons

(d) Sanitary inspection of water and milk supplies; of food establishments; of sewage disposal facilities; and of schools, camps, and swimming pools

b. Limited public health services in smaller communities, or communities partly organized for health work. These may include:

(1) A part-time health officer, usually a physician, whose chief duty is communicable disease control. All known or suspected cases of contagion are reported to him, and he advises schools regarding measures for the prevention and control of communicable diseases.

(2) A public health nurse, who should be a registered graduate nurse, preferably with public health training and experience

(a) The county nurse is usually employed full-time to do generalized public health work, including some consultant and follow-up services to the schools.

(b) The school nurse may be employed full or part-time by the school district to do health work.

(3) A full or part-time physician or dentist, who may be employed by larger school districts to do preventive and remedial work

2. Private health agencies

a. Medical and dental societies. Private physicians and dentists participate in all school and community public health work, directly or indirectly. It is therefore essential that they be consulted when health programs are planned.

b. Other private health agencies may provide medical, dental, or nursing services. In addition, public health nursing services may be provided by visiting nurse associations, insurance companies, or industrial groups.

c. Local health councils in some counties and smaller communities help to coordinate the efforts of official and private groups doing health work. These councils study the health needs of the community and plan for meeting these needs. Some councils have loan funds for assisting families in paying for medical or dental care.

3. Other agencies that include health services in general programs:
   a. Public welfare departments. Local public welfare departments usually administer medical and dental services for indigent families, and may make arrangements with other public or private agencies for care of medically needy patients. Services may include:
      (1) Hospitalization in local hospitals, the Colorado General Hospital, or tuberculosis sanatoria
      (2) Examination, treatment and benefits for blind persons
      (3) Special medical care for crippled children
      (4) Assistance with problems of dependent, delinquent, neglected or other handicapped children by local or state child welfare workers
   b. Private welfare agencies. Larger cities frequently have private organizations devoting their entire time and services to welfare work. Many of these include some health services for their clients.
   c. Local agencies of national organizations. These groups carry on different types of health work, maintain certain funds for specific medical or dental services, or aid

in the education and rehabilitation of handicapped persons. Some of these national groups are:

(1) The federal government. A number of agencies of the federal government have health programs for benefiting their clients. For example, borrowers from the Farm Security Administration may be eligible for loans to cover certain types of medical and dental services, or they may be members of groups that have arranged for specific medical and dental services on a prepayment plan.

(2) The American Red Cross. Local chapters may offer different types of health services, depending upon community needs and funds available. Tonsillectomies, eye examinations and glasses, dental treatment, and other remedial care are sometimes provided.

(3) The National Tuberculosis Association. Christmas seal funds raised by the Colorado Tuberculosis Association are used for tuberculosis control and health education. Tuberculin tests, chest X-rays and medical examinations are offered at diagnostic clinics in some communities. Health education, literature, or motion pic-

ture films may be secured from the local or state associations.

(4) The National Foundation for Infantile Paralysis. This organization raises funds that may be used locally to buy crutches, braces, special shoes, or other appliances for persons crippled by infantile paralysis. Sometimes medical, physical therapy, or other treatment may be arranged for needy patients.

(5) The National Society for Crippled Children. Funds raised by the Colorado Society for Crippled Children through the sale of Easter seals are used for home and bedside teaching of crippled and handicapped children.

d. Local associations, clubs, or lodges. Local organizations and branches of state or national groups frequently have health programs and may maintain funds for health work. Programs of these organizations often vary in different parts of the state. Some provide medical or dental services for individual needy children; some are interested in community projects for immunization or for better nutrition; others promote various phases of health education.

B. STATE AND NATIONAL AGENCIES OFFERING HEALTH SERVICES INCLUDE THE FOLLOWING

1. Official agencies

a. State Division of Public Health. The State Division of Public Health is under the direction of the Executive Secretary of the State Board of Health. It administers public health services authorized by state and federal funds and serves as a coordinating agency for public health work throughout the state. It cooperates with the United States Public Health Service, the Children's Bureau, and other national health agencies.

Representatives of the State Division of Public Health work with local health departments and other community agencies. Some of the services include:

(1) Immunization programs, maternal and child health medical conferences, dental health work, eye clinics, and advisory health service to schools

(2) Arrangements for diagnosis and treatment of crippled children

(3) Diagnostic tuberculosis clinics (offered in cooperation with the Colorado Tuberculosis Association) and

other measures for tuberculosis control

(4) Field consultant service by professional staff members for medical, dental, nursing, and medical-social problems; for communicable disease control, community sanitation, and industrial hygiene

(5) Issuance of birth certificates

(6) Public health education, through distribution of literature, loan of books, slides and motion picture films, and through talks and lectures

(7) Placement service for public health personnel. Assistance to schools in securing qualified nurses

b. State Department of Education. The State Department of Education operates under the Constitution of the State of Colorado to give advisory services to school districts. As part of its services, it promotes various health activities, such as health and safety education, and sponsors projects to help maintain and improve the health of school children. It also provides field consultant services for the special education of physically handicapped children.

The State Library, through its traveling library division, sends out books and

educational material to individual teachers, to superintendents, or to principals of rural schools who file a regular application and guarantee the return of such library material.

The State Board for Vocational Education develops educational services with schools and communities in home-making, better nutrition, and general vocational planning. It also offers rehabilitation services in the instruction and placement of physically handicapped persons over sixteen years of age.

The United States Office of Education offers expert consultation to the State Department of Education and provides plans and suggestions for health activities.

c. Colorado State College of Agriculture and Mechanic Arts Extension Service. Extension work in agriculture and home economics is carried on by the college in cooperation with the United States Department of Agriculture. Consultant service is given on problems relating to nutrition, clothing, and home management. Speakers are provided and leadership is given to local club groups. Publications of the United States Department of Agriculture and the College Extension

Service are available from the State Extension Division or from county agents or home demonstration workers.

d. Colorado School for the Deaf and Blind. Children whose vision or hearing is so defective that they cannot make satisfactory progress in the public schools may be sent to this school. However, children who have more than 20/200 vision generally can go to public schools.

To be entitled to admission to the school free of charge, children should be of sound mind and body, between the ages of six and twenty-one years, and residents of Colorado. Tuition, board and laundry, medicines and medical attention, books and apparatus used in teaching—in short, everything except clothing and traveling expense is furnished at the school. A descriptive circular and further information may be secured from the superintendent of the school.

e. Colorado State Homes and Training Schools for Mental Defectives. To secure a patient's admittance, the county judge in the county in which the patient resides should be consulted, and a letter written to the superintendent of the institution. Official applications will be mailed. Patients should not be sent until permission to do so is obtained from the superintend-

ent. The institution will advise as to necessary articles of apparel needed by patients.

Inmates of the institution are not permitted to leave on parole, vacations, or for any other purpose until the proper legal requirements are fully met.

2. Private Agencies

There are numerous state and national private organizations that maintain some type of health programs. Some of these agencies have been organized to meet specific health needs and their services are limited to these special health fields. There are other health agencies that are broader in their scope and cover all phases of health work. In addition, many organizations other than health agencies sponsor selected health projects.

It would be impossible to present in this handbook a complete list of such agencies. Some of those which offer practical health education materials useful to teachers are included among the references at the end of each section or in the general bibliography.

## EDUCATIONAL ACTIVITIES

Find out what public and private agencies offer health services in your community.

Write or tell a story describing what you would do if you were unable to pay for medical care and wanted help for a crippled child, for a tuberculosis patient, or for a child needing other medical attention.

Dramatize a child's visit to a dentist, a physician, a clinic, and a health conference.

Discuss the kind of work a public health nurse does and how she helps people. Tell how her work differs from that of other registered nurses.

Make a survey of the classroom to see how many children have birth certificates. Trace the procedure for obtaining a legal birth certificate.

Study the relationship to general health of economic factors—such as poor housing, inadequate diet, and improper clothing.

Make posters or write a play portraying the work of organizations such as the American Red Cross, or tuberculosis, crippled children and cancer control groups, especially at the time of fund-raising drives.

## SUGGESTED REFERENCES AND MATERIALS

American Public Health Association, 1790 Broadway, New York, N. Y.

"Community Organization for Health Education," Report of a Committee of the Public Health Education Section and the Health Officers Section of the A. P. H. A., 1941. 120 p. 9 cents.

National Education Association, 1201 16th Street, N. W., Washington, D. C.

Reports of the Joint Committee on Health Problems in Education of the N. E. A. and the American Medical Association.

"The Nurse in the School—An Interpretation," agency cooperating with the Joint Committee: Education Committee of the School Nursing Section of the National Organization for Public Health Nursing, 1941. 40 p. 20 cents.

"Home and School Cooperation for the Health of School Children," agency cooperating with the Joint Committee: National Congress of Parents and Teachers, 1937. 32 p. 20 cents.

Educational Policies Commission, N. E. A. and American Association of School Administrators.

"Social Services and the Schools," 1939. 147 p. 50 cents. Out of print.

American Association of School Administrators, a department of N. E. A.

"Health in Schools," 1942 Yearbook. 541 p. $2.00.

Colorado State Division of Public Health, State Office Building, Denver 2.

Field consultant service for assisting local groups with community health problems.

American Medical Association, 535 North Dearborn St., Chicago, Ill.

The Bureau of Medical Economics and the Bureau of Health Education have materials concerning ways that are used in making medical services available to the public.

American Dental Association, 212 E. Superior St., Chicago, Ill.

National Dental Hygiene Association, 934 Shoreham Bldg., Washington, D. C.

"Community Committees for Dental Health," 1941. 21 p. Free.

National Organization for Public Health Nursing, 1790 Broadway, New York, N. Y.

Materials on school health work and on school nursing.

"Bibliography on School Health," 1943. 4 p. 10 cents.

"Public Health Nursing," a monthly periodical, $3.00 year.

"The Nurse in the School Health Program," a leaflet, free.

# SCHOOL ENVIRONMENT

## The Thoughtful Teacher Realizes the Importance of Healthful School Environment

The modern teacher knows that environmental factors of schoolrooms, playgrounds, or surroundings vitally affect the health and welfare of the school child. The teacher, through continuous observation, is aware of conditions in or around the school that might be detrimental to the health of pupils. In addition, a wise teacher uses these discoveries to make the teaching of health more effective by applying them to the child's everyday school experiences.

Conditions involved in healthful school environment include the following:

### I. Adequate Lighting

It is necessary to have adequate light, diffused and well distributed, and controlled so there is no glare. The minimum intensity of light recommended for every part of the schoolroom is ten foot-candles, the unit of intensity being a foot-candle. Small portable light meters are now available for measuring the intensity of illumination. These meters can be read as easily as thermometers and are sufficiently accurate for school purposes. County superintendents or nurses may have a light meter, or they can advise the teacher where to obtain the use of one, or where one may be bought at moderate cost.

## A. WINDOW LIGHTING

The amount of transparent glass surface admitting daylight should be not less than 20% (1/5) of the floor area. Glass should reach as near the ceiling as possible, six inches being most desirable, since the best light comes from above.

Windows on opposite sides of the room cause eyestrain. If the windows cannot be changed, there should be doubly adjustable translucent shades on the sunny side of the room. Such shades may be raised or lowered from the center of the window to prevent glare and yet to permit the maximum amount of light in the room. Since windows in the front part of of the room are harmful to the eyes, it is advisable that they be covered with dark shades, paint, or boards.

Anything obstructing light, such as trees, shrubs, and window decorations, should be eliminated.

## B. ARTIFICIAL LIGHTING

Electric lights are desirable for use when daylight is inadequate. Proper artificial lighting requires a minimum of ten foot-candles in every part of the room. Local light and power companies can frequently furnish helpful advice on lighting problems.

C. PREVENTION OF GLARE

Soft colors such as light green or buff are preferable for use on walls, at least above the eye level. Only very light tints in mat surfaces should be used on the ceilings; usually a very light cream color is satisfactory. All woodwork, and especially the desks, should be finished with a dull surface paint or flat varnish to reduce glare. Glare can be avoided if the seats are turned at a slight angle away from the windows and arranged so that pupils face a windowless wall.

II. **Proper Seating**

A. ARRANGEMENT OF SEATS IN RELATION TO LIGHTING

1. Seats should be arranged to provide the best possible light for each child. It is better to use a light meter to check the illumination on each desk, especially on those farthest from the windows. In many schools the seats and desks are so arranged that children are crowded into the darker side of the room while the well-lighted space is given to things such as plants, bookcases, sand tables, and aquariums.

2. In arranging seats, care should be taken so that children do not face a direct light. The light should come from the left if possible. Light coming directly from the back of the seats necessitates the child's working in his

own shadow, thus reducing the intensity of illumination and increasing nervous tension. In rooms with windows on opposite walls, diagonal seating may be more satisfactory than rows parallel to the walls.

B. ADJUSTMENT OF SEATS IN RELATION TO POSTURE

Seats should be adjusted to the postural needs of individual pupils. These seats should be single and of such height and depth that the child, when seated with knees at right angles, rests his feet firmly and easily on the floor. Improvised foot rests or cushions are recommended for use until seats and desks of correct size can be provided. The desk should be so adjusted for small children that the edge nearest the child is directly over the front edge of the seat. For larger children the desk should be pushed forward one inch. Seats should be at least four feet from the stove or radiator.

III. **Desirable Blackboards**

Slate boards of a good quality are desirable. All blackboards should be smooth, dark in color, and have a dull finish. Since blackboards absorb light, it is best to place them in the front of the room. They should never be placed between windows. Proper height is important. In primary grades the lower edge of blackboards should be twenty-four inches from the floor; intermediate grades, 28 inches; and upper grades, 32 inches.

## IV. Controlled Ventilation, Heat, and Humidity

The air in schoolrooms should be warmed to about 68 to 70 degrees at the breathing level. A large water container should be used on the furnace or stove to aid in humidifying the air. This container should be kept well filled while the heating plant is in use.

An accurate thermometer is a necessity in the schoolroom and should be read at intervals throughout the day. It should be hung in such a manner that it could be easily moved around the room for temperature readings. The best position for the thermometer is about four feet from the floor, where it would not be affected by the sun or by hot or cold drafts.

Clothing worn by children in the schoolroom is always a factor in heating and ventilating problems. Heavy wraps, sweaters, and overshoes should always be removed on entering the schoolroom.

### A. HEATING PLANTS

The heating plant should be of sufficient capacity to maintain a temperature of 68 to 70 degrees on the coldest days. A basement furnace properly installed is probably the most satisfactory method of maintaining an even temperature throughout the room. Where a hot air furnace is used, care must be taken to have a sufficient number of cold air returns located so that the entire room may be adequately warmed. The jacketed stove has been found

satisfactory, provided it has a safe metal jacket. This type of heating unit should be placed at the end of the room where a window is located.

B. VENTILATION

Windows as means of ventilation in schools where a mechanical ventilating system is not provided, should open from the top as well as the bottom in order to give adequate air circulation. To avoid window drafts, a deflector which does not obstruct light is recommended.

V. **Safe Water Supply**

If there is no running water in the school building, there should be a water supply on the school grounds. All water supplies should be tested and approved once a year by the Colorado State Division of Public Health.

A. WELLS AND CISTERNS

A well should be so located that there is no opportunity for contamination. Sanitary engineers approve only wells located at least 300 feet from a cesspool, 200 feet from a septic tank, or 100 feet from a pit privy. A driven well is safer than a dug well. If it is necessary to use a dug well, it should have a curbing which protects it from surface water contamination. At least ten days before the opening day of school the well should be pumped out and the water tested. Sanitarians, sanitary engineers, health officers, or public health nurses are usually willing to assist.

The pump should be in such repair that it does not need priming. The Colorado State Division of Public Health does not approve water from pumps that require priming. A pitcher pump is not approved. The closed spout pump is much more sanitary.

If a cistern is used for water storage, it should be protected according to specifications of the Colorado State Division of Public Health.

## B. SANITARY DRINKING FACILITIES

Water which is safe can be made unsafe by the way it is dispensed.

Where there is running water, a slant jet fountain is recommended. The jet should be protected by a guard to prevent contact with lips, and should be placed higher than the edge of the fountain bowl to prevent contamination by flooding in case the drain becomes plugged. The straight jet fountain is not sanitary.

Where there is no running water, it is preferable to use a covered container or "water cooler." Water should always be kept in covered containers which are cleaned frequently. Paper cups or other individual drinking cups should be provided. If other cups are used, they should be kept in a fly-proof cupboard and washed at frequent intervals.

Opportunities should be given children to get a drink three or four times during the day.

## VI. Sanitary Toilet Facilities

Convenient sanitary toilets that can be kept clean easily are a most necessary part of healthful living in the school. All toilet rooms should be well lighted and ventilated. It is recommended that there be at least one toilet seat for each twenty-five girls and one for each thirty-five boys, plus a urinal for the boys. Toilet paper should be provided. The hand washing facilities should be conveniently located for use after the toilet.

### A. INDOOR TOILETS

Toilets of a sanitary type located in the school building are desirable. If the school is adequately heated to prevent freezing and is connected with a municipal water supply or pressure tank, water flush toilets are advisable. "Frost-proof" or hopper type toilets in connection with public water supplies are a menace to public health. If connection with public sewers is not available, a combination septic tank and cesspool, constructed in accordance with the specifications of the Colorado Division of Public Health, is satisfactory.

### B. OUTSIDE PRIVIES

Outside pit privies should not be used if other systems can be installed. If used, they should be so located that they do not endanger the water supply. Pit privies should have a deep, fly-proof pit, self-closing covers, and a vent which extends from the seat to above the height of the

roof. Boys' toilets should have a urinal installed. For specifications, write to the State Division of Public Health.

## VII. Satisfactory Hand Washing Facilities

Fundamental health principles demand that hands be washed after using the toilet and before meals. Washing facilities should be sanitary to avoid the danger of transmitting skin infections and other diseases. Sanitary washing is always done under running water.

### A. EQUIPMENT

1. Running water. Where plumbing is not available, water may be poured from a pitcher or other container.
2. Soap dispenser with liquid or powdered soap. A sprinkle-top bottle may serve as a simple dispenser.
3. Paper towels. Cloth towels for each individual child may be substituted if they are kept clean. These might be made from flour or sugar sacks.
4. In schools without plumbing, a bucket for waste water should be placed high enough to prevent water from splattering.

### B. PROCEDURE

Where the school has running water, washing should be done under the flow with no plug in the wash bowl. In schools without plumbing,

pupil assistants should be appointed for dispensing water, soap, and towels as children pass in line.

VIII. **Attractive Lunch Room**

The school lunch room should be in a warm and dry place where fresh air and sunshine are readily available. It should be as attractive as possible. The room should be screened from flies and the storeroom protected from rodents. Provision should be made for refrigeration. If ice or electricity are not available, an iceless refrigerator may be made.*

The following tasks should be performed daily in a school which prepares all or part of the lunch:

A. Washing and scalding all dishes thoroughly†
B. Ventilating the cooking, storing and serving rooms
C. Dusting and cleaning all working and serving spaces
D. Storing left-over food in tight containers
E. Washing dish cloths, towels, and dust cloths
F. Washing lunch tables
G. Sweeping floors and mopping when necessary
H. Removing garbage and waste, and cleaning garbage container
I. Checking fresh fruits and vegetables and removing spoiled fruit.

*"The Iceless Refrigerator," Bulletin, Colorado State College of Agriculture.
†Suggestions regarding materials and methods for sanitary dishwashing may be secured from the State Division of Public Health.

## IX. Clean Floors

Floors should be clean, smooth, and in good repair. Sweeping and dusting should be done **after** school, as it takes from fifteen minutes to an hour for the dust to settle. A schoolroom should **never** be dry swept. If a commercial sweeping compound is not available a substitute may be made with ordinary sawdust moistened with water.

## X. Complete Safety and Fire Protection*

### A. PLAYGROUNDS

Playground equipment should be inspected at frequent intervals for safety. Complete fencing of the playground is desirable, but the use of barbed wire is hazardous. Other accident hazards, such as boards, nails, and stumps should be removed.

### B. FIRE HAZARDS

Safety from fire hazards is an important responsibility of the school. Fire drills should be held at regular intervals and fire hazards should be eliminated.

1. Every school should have two exits with doors that open outward. Entrances and exits should not be blocked by school furnishings,

*For additional information refer to "Accident Prevention and First Aid," page 137.

because a blocked door is cause for panic in case of fire. Entrances and exits should be provided with panic bar locks of approved type. Fire escapes should be kept clear and in good repair.

2. Every school should have fire extinguishers that are approved by the Fire Underwriter's Laboratory. These should be conveniently located for immediate use and checked regularly by a competent person. Fire hose, together with water outlets, should be inspected at least twice a year.

3. The case-top of any furnace should not come within twelve inches of a combustible ceiling or joist. If it must be closer, a metal or asbestos shield, suspended at least two inches below the woodwork, should be installed to protect the ceiling and joist. However, even with this protection, the case-top should never be closer than six inches to the ceiling or joist.

4. Installation and repair of electric wiring and equipment should be done by qualified electricians.

5. The use of kerosene and gasoline to produce a quick fire is very dangerous. Gasoline should never be kept in or near the school-

house. Kerosene should be burned only in an oil stove built for that purpose.

6. Materials subject to spontaneous combustion, such as sweeping compounds and oil mops, should always be stored in metal containers to reduce danger of fire. Accumulation of coal dust is also dangerous.

7. Ashes and rubbish should not be allowed to accumulate in, under, or around the school building. Tall grass and weeds should not be allowed to grow near wooden buildings.

## EDUCATIONAL ACTIVITIES

Make a teacher-pupil survey of lighting, using a light meter. Have pupils arrange seats and tables so as to avoid glare, and make adjustable book rests. Teachers may ask children to help adjust window shades during the day.

Make a teacher-pupil survey of heating and ventilation. Make deflectors for windows. Keep room temperature records, checking temperature at various times during the school day.

Make a liquid soap. Liquid soap may be made by chipping a large cake of soap and dissolving it in two cups of hot water. When soap is dissolved, six cups

of warm water should be added and mixture stirred vigorously.

Study the care of the lunch room. Appoint a committee to make and keep lunch room attractive.

Learn what regulations are made by the local or state health departments regarding inspection and sanitation in restaurants and stores.

Make a teacher-pupil survey of sanitary conditions of the school. Note what improvements should be made. Discuss ways and means of making the improvements.

Visit the water supply plant, sewage disposal plant, or a dairy plant in the community and report on findings to the class.

Visit the local fire department and discuss fire prevention with the fire chief.

## SUGGESTED REFERENCES AND MATERIALS

Colorado State Division of Public Health and State Department of Education.

Pamphlets and mimeographed materials on school sanitation.

"Sanitary Survey of Schools," a manual, 1938.

Michigan Department of Health, Lansing, Michigan.
"Suggestions on Rural School Sanitation."

Illuminating Engineering Society, 51 Madison Ave., New York, N. Y., and The American Institute of Architects, The Octagon, 1741 New York Ave., N. W., Washington, D. C.

"American Recommended Practice of School Lighting," 1938. 60 p. 25 cents.

U. S. Office of Education, Washington, D. C.

National Education Association, 1201 16th St., N. W., Washington, D. C.

National Society for the Prevention of Blindness, 1790 Broadway, New York, N. Y.

Pamphlets and reprints on lighting.

National Board of Fire Underwriters, 85 John Street, New York, N. Y.

Materials on fire prevention and fire protection.

Colorado Tuberculosis Association, 613 Mack Building, Denver 2.

"Healthful School Living," 1938. 15 p. Single copies free.

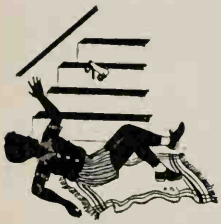
Bruce Publishing Company, 540 N. Milwaukee St., Milwaukee, Wis.

"The American School Board Journal," a periodical.

Other commercially-sponsored materials may be secured free or at low cost. See Appendix, page 235, for sources.

# ACCIDENT PREVENTION AND FIRST AID

## The Competent Teacher Is Informed Regarding Accident Prevention and First Aid



The teacher and other school personnel safeguard the child while he is at school, but the teacher has the further responsibility of instructing the child in the principles of accident prevention and first aid. This instruction should begin in the early elementary years and continue through high school. It should be so practical and understandable to children that they will feel greater responsibility for their own safe conduct and for the safety of others in the community.

Courtesy and thoughtfulness toward others form the foundations for prevention of accidents in the school, in the home, and in the community. It is upon these virtues that safety education is built. Consideration for others is recognized to be the first necessity in making people safety-conscious.

### I. Prevention of Accidents

Instruction should include not only safety at school but also safety in the home, safety on the farm, and safety on the highway. Statistics show that most of the non-fatal accidents occur in the home, yet there has been a tendency in both high schools and elementary schools to emphasize only traffic safety.

The following examples are some of the hazards which the teacher may consider in stressing lessons of safety:

A. AT SCHOOL

There are still too many preventable accidents in school buildings. Some of the following conditions may cause these accidents:

1. Floors—slippery from water, oil or other substances. Objects out of place on the floor may cause falls
2. Irregularities—such as splinters, uneven floors, protruding nails
3. Windows—broken panes, faulty operation, insecurely fastened shades
4. Doors—opening in instead of out; insecure knobs and locks
5. Walls—loose plaster or other loose materials
6. Desks and seats—loose parts, broken seats, splinters, sharp corners
7. Furnaces and stoves—improperly jacketed, unguarded or non-insulated; escaping gas; improper air circulation; spontaneous combustion of fuel; careless use of matches
8. Store rooms—fire hazards from careless storage of paper, trash, oil mops, floor oils, rags
9. Stairs and halls—poor lighting, loose objects on floor, metal strips that catch heels, stairs

too steep or irregular in tread, absence of or insecure bannisters

10. School grounds—playground equipment not kept in repair; improper use of the equipment on grounds; icy steps, walks, and fire escapes

B. AT HOME

Hazards in and around the home account for the greatest number of all accidents. Carelessness is frequently a major factor in the cause of these accidents. Injuries resulting therefrom are often serious, or become so through infection.

Some home dangers that may be used as a basis for teaching safety are:

1. Falls—climbing on insecure chairs or broken ladders; hanging curtains or washing windows without proper support; poor lighting; improperly made stairs or lack of railings; objects out of place on the stairs and elsewhere; slippery floors

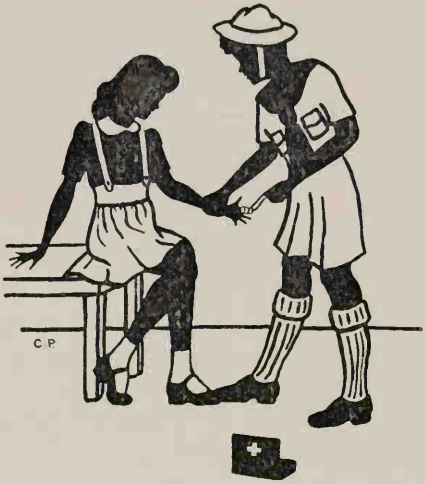
2. Fires—carelessness with matches, lighted cigarettes, gasoline, kerosene, and inflammable cleaning fluids; accumulations of paper and trash; storage of oily rags and mops; poor wiring; electric appliances left connected during user's absence

3. Electricity—improper insulation of wires; standing in water or on damp floors, or using wet hands to operate electric switches or other outlets; operating appliances inadequately insulated or out of order; careless observance of instructions in use of appliances; electrical repairs and additions made by unqualified persons
4. Sharp or pointed objects—careless handling of knives, tin cans, rusty articles, broken glass, furniture, or machines; splintered floors and woodwork
5. Injuries from animals—bites, scratches, and other injuries from farm animals and pets
6. Firearms—guns and ammunition carelessly stored or handled

C. ON STREET AND HIGHWAY

A few of the outstanding causes of injuries from traffic accidents are listed below:

1. Walking on wrong side of road; wearing dark clothing that cannot be seen at night; walking into street or highway from behind cars
2. Running onto street or highway without caution; playing in streets or on roads
3. Ignorance of, or disobedience of, traffic regulations
4. Bicycles not equipped with lights and reflectors for night riding; careless riding of bicycles and disobedience of traffic rules



## II. First Aid

Supplying first aid service at school is important, but the major emphasis should be on instructing pupils in recognized first aid practices. Each school might well emphasize the following:

### A. EFFECTIVE INSTRUCTION OF PUPILS IN FIRST AID PRINCIPLES

Since major and minor injuries are relatively common in childhood, some work in first aid should be given in the elementary school, and more advanced instruction should be given in the secondary school. This instruction may be included in courses in health, hygiene, home nursing, or physical education, or it may be made a separate course required of all pupils.

In many instances, even by the end of the sixth grade, children may be taught how to apply first aid in certain types of injuries, such as minor cuts, bruises, or burns. They may apply treatment to themselves or their classmates under the supervision of the teacher. The best time for pupil learning is when an accident occurs. Any accident may then become the subject of a first aid lesson.

The success of the instructional program, however, can best be judged by the attitudes pupils develop toward first aid care. Therefore, the development of attitudes is as important as the teaching of techniques.

B. A PLANNED WRITTEN PROGRAM FOR FIRST AID

A written guide, including policies of the school approved by the local school board, should be provided each teacher. This guide, compiled under direction of the school physician or the local medical society, should contain the policies and exact procedures to be followed in case of emergency. The responsibility of each member of the school staff should be clearly defined. Those teachers who have never received first aid instruction should take a Red Cross first aid course.

A manual on first aid measures should be available in every school building so that the teacher may become familiar with first aid prin-

ciples before an emergency occurs. It will also be valuable for reference in case of more serious emergencies. Two manuals are especially recommended:

"First Aid Textbook"—American Red Cross

"Until the Doctor Comes"—U. S. Public Health Service

A first aid kit consisting of a tight container with necessary supplies should be readily available in every school.*

1. School Policies on First Aid Care†

   The following policies are recommended:

   a. No treatment of injuries except first aid is permitted in the schools. First aid is the immediate help given by the best qualified person at hand in case of accident or sudden illness. At least one person in each building should have had special training in first aid and should be available in the absence of a physician or nurse.

   b. Treatment of injuries occurring outside school jurisdiction are not the responsibility of school employees.

   c. Dressings put on at home should not be disturbed, and no second dressing should be applied at school.

*See "Essential First Aid Supplies," Appendix, page 231.

†See "School Health Policies," prepared by the Colorado State Department of Education and State Division of Public Health.

d. No drugs should be given at any time unless it be aromatic spirits of ammonia in case of fainting. The prescribing of aspirin for headache or pain, or the giving of sodium bicarbonate, is not sound school policy and is faulty health education in schools.

e. The school's obligation continues after the emergency until the injured person has been placed in care of the family or the family physician.

2. Procedures to be followed in case of emergency

Exact procedures approved by the school physician or the local medical society should be available to each teacher. They may include:

a. **Care of minor skin injuries, such as cuts, abrasions, and scratches**

It is necessary to stop bleeding and to prevent infection. Every wound should be treated with an antiseptic.

Before care is given, the hands should be washed with soap and water. Needed first aid supplies,* such as applicator, antiseptic, and sterile dressing should be placed on a clean towel or napkin.

*Refer to Appendix, page 231.

It is usually safer not to attempt to clean a dirty wound but to leave this treatment for the physician. The antiseptic should be applied with an applicator, first to the wound and then to about one inch of the surrounding skin. Care should be taken so that blood clots are not disturbed, because this could start bleeding anew.

A dressing should be applied if necessary; many scratches and bruises do not need a dressing. Care should be taken not to apply a dressing before the antiseptic has dried on the skin. Nothing should be permitted to touch the part of the dressing that will come in contact with the wound. Absorbent cotton should not be used as a dressing because it sticks to the wound and is difficult to remove. Wash hands before putting away supplies.

b. **Care of blisters**

If a water blister or blood blister can be protected so that it will not break open, it is less likely to become infected. If it is open, it should be given the same care as a cut or abrasion.

c. **Care of animal bites**

The wound should be washed with running water to remove all animal saliva. After it has been dried with clean gauze,

the same procedure as for cuts or scratches should be used. The child's parents should be informed that an animal bite occurred so that they may consult their physician at once. If it is a dog bite, the dog should be securely tied or shut up and observed carefully for ten days to see if it develops rabies. If the dog is then killed, it should not be shot through the head, as the physician may wish to have the head examined for rabies.

d. **Care of burns and sunburn**

Essentially the same procedure should be followed as suggested for cuts or abrasions. Instead of an antiseptic, tannic acid jelly may be applied. Ointments, greases, or oil of any kind should not be used, as they are difficult to remove and thus may make it impossible for the physician to employ more effective treatment. Sunburn is usually treated as any other burn.

e. **Care of frostbite**

Frostbite is the injury produced by the freezing of a part of the body. The frozen part should be gently covered with the hand or other body surface until the part is thawed and circulation re-established, or it may be thawed very gradually in cool or tepid water. It should not be exposed

to a hot stove or radiator for some time, as severe pain and even permanent damage may result. Rubbing after freezing is not proper treatment; rubbing with snow may be harmful to the tissues.

f. **Removal of a foreign body from the eye** Children should be cautioned not to rub the eye, as the delicate tissues of the eye may be scratched or infection started. Rubbing may also drive the foreign body deeper into the tissues. When simple methods fail to remove a foreign body from the eye, a sterile compress should be held over the closed eye and a physician promptly consulted. Careless and inexperienced handling may cause serious damage. No attempt should be made to remove an embedded body from the eye. Loose particles in the eye may be removed thus:

(1) Hands should be washed before giving aid. The upper lid should be pulled out and down over the lower lid, held in this position for several seconds, then released. This procedure may be repeated if necessary. This gives the tears a better chance to wash the foreign body to the inner corner of the eye, where it can be

easily removed with a corner of sterile gauze or clean handkerchief.*

(2) Chemicals in the eyes, including lime, plaster, cement, and acids, should be washed out immediately with great quantities of plain water.

g. **Care of insect bites**

Many insect bites or stings cause swelling and inflammation, and may be quite painful and poisonous. Infection frequently occurs from scratching. The "stinger" should be removed if it is still present and can be easily extracted. A compress moistened with a few drops of ammonia water will neutralize the acid poison and will give some relief. If there is much swelling and pain, especially if the stings are around the eyes, mouth, or throat, or if the insects have attacked in great numbers, a physician should be consulted. If a child has been bitten by a tick, the parents should be advised to consult their physician immediately.

h. **Care of snake bites**

Treatment should be started at once. The patient should lie down and be kept quiet. A constricting bandage, necktie, or handkerchief should be tied around the limb

*Refer to a First Aid Manual for further instruction.

just above the bite. About every twenty minutes this tourniquet should be released for one minute and then re-tightened. As swelling progresses, this bandage should be moved higher up the limb.

A sharp instrument should be sterilized with a match flame or an antiseptic. A cross-cut incision should be made at each fang mark so that there is free bleeding. Care should be taken to avoid large veins and arteries that may be visible under the skin. If a vein is cut, the bleeding should be controlled by pressure with a finger.

Suction should be applied for at least one-half hour. If a suction cup is not available, suction may be applied by the mouth. The patient should be kept quiet and the physician called at once. In areas infested with rattlesnakes, a small snakebite kit including a sharp blade, a suction cup, and a tourniquet should be kept on hand.

i. **Care of head injuries**

A severe bump or blow on the head, or a fall where the head strikes some hard object, may be serious without immediate or apparent evidence of injury. After such a bump the child should lie down and rest for at least a half hour. He

should be kept warm, but cold cloths may be applied to the head. If further symptoms appear, such as pallor, faintness, sleepiness, nausea, or bleeding from the nose or ears, the child should be taken home. Children who receive this type of injury should be watched carefully.

j. **Care of nosebleeds**

Usually bleeding from the nose stops of its own accord. If it continues, the person should sit with his head thrown slightly back and breathe through his mouth. A cold wet compress should be applied over the nose and the back of the neck. If this does not stop the bleeding, the nostrils may be pressed firmly together for four or five minutes. This usually stops the bleeding and gives an opportunity for a clot to form. The patient should avoid blowing the nose for a few hours after the bleeding has stopped, so the blood clot will not be dislodged. If these measures fail, a narrow piece of damp cotton may be inserted into the nostril and the doctor called at once. Children with frequent nosebleeds should be referred to their physicians.

k. **Care of persons who have fainted**

Fainting is caused by temporary inadequate circulation of blood to the brain.

The face and lips grow pale and the person becomes dizzy. The forehead is frequently covered with perspiration. The patient slumps or falls unconscious. Breathing is shallow and the pulse is weak and usually slow.

If a child shows signs of faintness, he should sit down and bend his head over to the knees, or he should lie down. If he loses consciousness the teacher should avoid letting him fall by easing him gently to the floor. The head should be lowered. If this is not possible, the same result can be achieved by elevating the lower limbs. Any tight clothing must be loosened, especially around the neck and chest. An ammonia inhalant, such as cotton soaked with aromatic spirits of ammonia applied to the nose, often produces immediate results. Sprinkling the face with cold water also stimulates circulation of the blood to the brain. Usually the patient becomes conscious in a very short time.

A person must never be given anything to drink while unconscious. After return of consciousness, a stimulant by mouth may be administered. A teaspoonful of aromatic spirits of ammonia in half a glass of water is recommended. A child should be kept lying down until fully recovered. If the fainting is prolonged,

heat should be applied to the body and a physician called.

I. **Epileptic fits or convulsions**

There are several forms of epilepsy. In the more severe seizures, the face becomes pale, the eyes roll up, the patient falls forcibly, utters a hoarse cry, loses consciousness, bites his tongue, and turns blue. There is often involuntary urination; evacuation of the bowels is likely to occur. These symptoms take place at practically the same time but not all are present in every case. Then convulsive muscular movement begin; often there is frothing at the mouth; the blue color rapidly passes off; and in a variable length of time the convulsions cease and the patient passes into quiet unconsciousness. The patient may become conscious in a few minutes or may pass into a deep sleep.

The person should be prevented from injuring himself. A piece of wood wrapped in cloth, a folded cloth, or some other suitable object should be placed between the teeth to prevent him from biting his tongue. Something soft should be placed under the head to protect it, but no effort should be made to restrain the convulsive movements. No stimulant should be given.

m. **Other emergencies**

In the event of more serious injuries, such as hemorrhage, shock, sprains, fractures, etc., the teacher should refer to the school's first aid manual for instructions to be followed until the physician comes. It is very important that, before an emergency arises, teachers should understand the basic principles underlying procedures, such as the administration of artificial respiration and the use of bandages and splints.

It is generally agreed that treatment for illnesses, such as earache, headache, and toothache is not the responsibility of the school, and that such treatment should be given by the family physician or dentist.

## EDUCATIONAL ACTIVITIES

Study first aid materials of youth groups, such as the Boy Scout Manual.

One class might be responsible for inspecting and equipping the first aid kit.*

If school does not have a cupboard or kit for first aid supplies, children might make one.

For schools in which first aid is not given as a unit course, it might be an extra-curricular activity.

*Refer to Appendix, page 231.

Demonstrate to children in lower grades the correct way to cross a street. In rural areas, children should learn how to walk along a highway safely.

Children might assist with survey of school buildings and grounds for hazards.

Children might survey hazards in their homes.

Children might learn to apply bandages and practice on each other.

Older children might make a study of the causes of accidental injuries and deaths in their community and plan a safety program for the school. Statistics and assistance may be secured from the Motor Vehicle Bureau of the State Department of Revenue.

## SUGGESTED REFERENCES AND MATERIALS

National Education Association, 1201 16th St., N. W., Washington, D. C.

A variety of educational materials on safety. Write for list of publications.

"Safety Education," American Association of School Administrators, 18th Yearbook, 1940. 544 p. $2.00.

"Safety and Safety Education," an annotated bibliography, 1939. 64 p. 25 cents.

"Teacher Liability for Pupil Injuries," Research Division, Safety Education Projects, 1940. 24 p. 25 cents.

U. S. Office of Education, Washington, D. C.

"Safety and Health of the School Child," Pamphlet No. 75, 1937. 29 p.

U. S. Public Health Service, Washington, D. C.

"Until the Doctor Comes," James A. Dolce, M.D., Misc. Publication No. 21, 1941. 25 cents.

American Red Cross, 17th and D Streets, N. W., Washington, D. C.

"First Aid Textbook," Corrected reprint, 1940. 60 cents.

"Life Saving and Water Safety," 1937. 267 p. 60 cents.

"Textbook on Home Nursing," School Edition, 1943. 60 cents.

"Preventing Accidents," 1941, Revised edition, 29 p. Free.

"Accident Causes—Information for Teachers."

National Safety Council, Inc., 20 North Wacker Drive, Chicago, Ill.

A list of publications, moving picture films and periodicals may be secured upon request.

American Automobile Association, Washington, D. C.
Educational materials on driving and traffic safety.

"School Transportation in Wartime," Handbook for National Council of Chief School Officers from Yale and Washington Work Conference.

Colorado State Department of Education, State Capitol Building, Denver 2.

Education materials on safety, including "Course of Study in Traffic Safety for Junior and Senior High Schools in Colorado." 64 p. Free.

Other commercially-sponsored materials may be secured free or at low cost. See Appendix, page 235, for sources.

# HEALTH RECORDS

## The Thorough Teacher Keeps Good Records

The teacher who is endeavoring to do effective health work will find that adequate health records are essential. In order to have good health records it is important that the teacher have a clear understanding of their uses and a knowledge of the various recommended record systems.

I. **Principles of Record-keeping**

A. There is nothing intrinsically valuable about a record itself. The mere writing of information on a piece of paper does not influence the health of children. The only justification for record-keeping is the assistance it gives workers in providing more effective health service to children.

B. Health records for the child should be integrated so that a complete picture of health service given by all school workers can be seen at a glance. The record system must be simple, with a minimum of duplication, and should be designed to fit the health program of each school.

II. **Uses of Health Records**

A. The school health record might include the teacher's own observations of the child's health, behavior, and attitudes; information supplied by the family in regard to the child's previous

health history or current health problems; reports of the nurse's follow-up visits; and statements concerning examinations or treatments given by physicians and dentists.

B. Such a record is a source of basic health data that can be used by the teacher and nurse in selecting pupils who seem to have health problems. A thorough and complete health examination of these pupils is recommended, rather than routine examination of all pupils.

C. This record can be used for coordinating and exchanging information with the school nurse, parents, physicians, and dentists. Better health service will result if the teacher keeps written notes of questions or problems as they arise to be discussed later in informal conferences with those concerned.

III. **Types of Records**

A. THE CUMULATIVE INDIVIDUAL HEALTH RECORD is best because it is a permanent record that is passed with the pupil from grade to grade and from one school to another. On it is recorded cumulative data from teachers, nurses, parents, physicians, dentists, and other community workers. It should include a chronological record of the preschool health examination, school examinations, tests, corrections, illnesses, and all other observations concerning the child's health, not just for one term but for the child's entire school experience.

1. The form of the cumulative health record should be most carefully considered. It may be developed as a separate health record or may be combined with the permanent scholastic record of each child. In either case it is suggested that health, scholastic, and guidance records be filed together, since correlation in the use of these records is important for the complete understanding of the child. Some schools keep all records pertaining to a child in one large folder; others use an envelope.

2. Care should be taken to provide sufficient space on permanent health records for adequately recording all kinds of health information. Often, too many items are included on the record and not enough space is left for narrative notes. Since items pertaining to medical examination take up so much space and yet are not always sufficient for accurately recording findings and recommendations, it is suggested that a separate supplementary form be used for each medical examination. Such a form can be used by family or school physicians and then be filed in or with the cumulative health record.

3. The manila folder type of record seems better than a single card, not only because it provides more space for recording, but also because it may be used for temporary or permanent filing of health data. For exam-

ple, excuses for absence because of illness, written notes from parents, or other correspondence may be filed in the folder and summarized in the record itself near the end of the school term. Dental and medical reports may be entered on the record or be filed permanently in the folder. Current notes may be made by the teacher, indicating changes in the health status of a child, or problems to be referred for follow-up care; these notes could be dropped into the folder for future use.

4. Standard forms for cumulative records are recommended, especially if records are sent from one school to another. Sample record forms that may be copied or adapted to fit the needs of local school health programs are available from the Colorado State Division of Public Health.

B. A CLASSROOM HEALTH WORK SHEET is sometimes used as the health record in schools that do not have permanent records for each pupil; or it may be used as a temporary work sheet by teachers in large schools.

1. This type of record should combine on one form all kinds of health information about children. Quite often separate sheets are used for recording weights, vision tests, dental examinations, and similar data. These records are usually made and used by different

people in the school and are not filed in one place, so that no one person has a complete health record of a child or a classroom.

2. The disadvantages of using a classroom record instead of a permanent individual record are that valuable current and cumulative information is lost to the teacher, nurse, physician, or dentist at the end of each term, and new records must be started each year. The classroom record does not give the teacher a picture of the child's previous health status or of steps that had been taken by the school, family, or others in trying to improve the child's health.

3. Some teachers like to use a classroom health work sheet for recording current information, and then they summarize significant data and enter it on the permanent record at the end of the school term. This may be convenient in large schools, when the permanent records are filed in the principal's or the nurse's office.

## SUGGESTED REFERENCES AND MATERIALS

Colorado State Division of Public Health, State Office Building, Denver 2.

Sample record forms and other materials on school health records.

The Commonwealth Fund, New York, N. Y.

"Solving School Health Problems," Dorothy B. Nyswander, 1942. 377 p. $2.00.

National Organization for Public Health Nursing, 1790 Broadway, New York, N. Y.

Reprints and other materials on school health records.

American School Health Association, 3335 Main Street, Buffalo 14, N. Y.

"The Journal of School Health," published ten months each year, often has articles on school records.

American Association of School Administrators, National Education Association, 1201 16th St., N. W., Washington, D. C.

"Health in Schools," 1942 Yearbook. 541 p. $2.00.

# APPENDIX

## REST PERIODS

Supplement to section on "The Healthy Child," p. 18.

The State Department of Education desires to lay special emphasis on the need for rest periods in schools today, and upon the ease with which a program of rest, that is, complete inactivity, can be made a part of the daily school program.

Nervous tension shows in the emotional attitudes and physical reactions of our school children. There is evidence that discipline is becoming progressively a more difficult school problem as a result of this tension.

Frequent short rest periods in the classroom are effective in relieving nervous strain. The value of short periods of complete inactivity has been demonstrated with numerous groups of children. Wherever this has been tried, the children whose program of activity in school was interspersed with brief periods of complete rest became more tractable and more responsive to instruction. Furthermore, a decrease in absences was noted.

Rest requirements of children vary, but all children need some time for complete rest during the school day, especially when working or playing together in groups. At least ten minutes each morning and each afternoon should be allowed for rest periods, preferably spaced at

regular intervals. The program should be adjusted so that every child is given a chance to relax some time during the day and thus relieve physical and mental strain. Fresh air and a quiet atmosphere are basic to a successful rest period.

Some school authorities have regarded this program as being so vital that cots have been set up in order to insure complete rest, especially for tired, nervous, delicate, or convalescent children. However, rest periods are possible in any of our schoolrooms without new equipment or any expense. If children are out of drafts they may lie on the floor protected by blankets or by papers if blankets are not available. When this is not practicable, a fair degree of rest is possible simply by folding the arms on the desk and putting the head down on the arms.

Not all the suggestions to conserve children's health are possible for every teacher to carry out, but the inclusion of short periods of complete inactivity in the daily program is a possibility in every school room.

During the children's rest period, the teacher herself could take advantage of this time to relax, and by so doing set a good example. The beneficial as well as profitable results of two rest periods a day are recognized in business offices where stenographers and other machine operators are working under strain or under monotonous circumstances. It is important that the teacher dealing with impressionable children should take short periods of rest in order to avoid frayed nerves and to help maintain a calm atmosphere in the schoolroom.

# IMMUNIZATIONS AND DIAGNOSTIC TESTS

Supplement to section on "The Ill Child," page 23.

## IMMUNIZATION

The school health program should encourage immunization against communicable disease, particularly against smallpox and diphtheria. Immunization against such diseases as typhiod fever, whooping cough, tetanus, Rocky Mountain spotted fever, and scarlet fever, is not generally carried out by the school but may be recommended by the private physician. The State Division of Public Health cooperates with local physicians and schools and furnishes certain biological materials for use in approved immunization programs.

## SMALLPOX

Smallpox, one of the most virulent of infectious diseases, is transmitted by contact with the sick person or with articles soiled by discharges of the smallpox lesions. All races and ages are susceptible.*

It is recommended that every child be vaccinated before he is one year old and again upon entrance to school. Vaccination should also be repeated whenever an outbreak of the disease occurs in the community or when an exposure to smallpox is anticipated. The experience of the last 150 years has conclusively proved that such a program, thoroughly and systematically carried out, will absolutely control smallpox.

*Refer to Appendix, page 175.

If a smallpox vaccination "takes" a small eruption that looks like a pimple will appear within a few days. This may become larger, and then a tough scab will form over it. (There will be some soreness during this stage.) The scab will stay on for about two weeks, and then will fall off leaving a scar.

The vaccination should be left strictly alone, and care should be taken to prevent its being rubbed or scratched. It is important to keep the vaccination cool and dry and therefore shields or dressings should not be used. If there should be oozing from the vaccinated area, a fold of sterile gauze may be attached in the sleeve of the garment, not to the skin. Avoid tight or heavy clothing over the area.

If the vaccination does not "take," no scab will form and there will not be a scar. This may or may not mean that the child is immune. It would be well to have the vaccination repeated at once if the child has never had a successful vaccination which left a scar. Practically every child will have a "take" with the initial vaccination if potent, refrigerated vaccine is used and careful technique is employed.

A person who has a vaccination scar is less apt to have a "take" on succeeding vaccinations. Repeated smallpox vaccinations can do no harm. If it is not needed, the new vaccination will not "take." However, if the person's immunity has fallen below a safe level, it will be reinforced and made fully protective by the new vaccination.

## DIPHTHERIA

Diphtheria is generally a disease of childhood, although no age group is exempt. The disease is caused by a distinct germ, the diphtheria bacillus, which is usually found in discharges from the mucous membrane of the nose and throat. As in the case of smallpox, we have a method of immunization which, when consistently employed, will prevent the occurrence of diphtheria in epidemic form.*

It is especially important that children be immunized against diphtheria as early in life as possible, since the death rate for this disease is highest among those under school age. It is recommended that infants receive the first immunization during the last half of their first year of life. This should consist of two doses of alum-precipitated diphtheria toxoid or three doses of plain toxoid, given at four-week intervals. Children so immunized should receive a single reinforcing dose of toxoid on entrance to school or three to five years after the initial inoculation.

When the program has not been carried out during infancy, children up to and including those eight years of age should be immunized in the same way as infants. Older children and adults should first be Schick tested and only those showing a positive Shick test should be immunized. Since older children and adults sometimes have severe local or constitutional reactions, physicians are careful in determining the kind and dosage of immunizing agent to be used. Usually toxin-antitoxin or

*Refer to Appendix, page 180.

decreased doses of plain toxoid are given. (See Schick test, page 171.

Most children have very little if any reaction after diphtheria immunization. There may be some redness and soreness at the place where the needle punctured the skin, as there might be after any hypodermic injection. A few children may also have a slight fever and a headache, and the arm may be sore and a little swollen for a few days. There will not be any scar left on the skin.

## TYPHOID FEVER

In general, it is not necessary for schools to conduct immunization programs for protection against typhoid fever. However, when typhoid fever is present in a community it may be advisable for a school to promote a typhoid immunization program. An efficient typhoid vaccine has been developed for this purpose and is given in three injections at intervals of one week. Its use is recommended whenever local circumstances indicate it. The most effective method of typhoid prevention consists in providing pure water and milk supplies and having proper sewage disposal facilities.

## DIAGNOSTIC TESTS

There are a few tests which are sometimes given to school children as part of a health examination or as a special service to certain age groups. Such tests include the Schick test, the tuberculin test, and a serological test for syphilis.

1. **The Schick test** is a harmless method for determining whether or not a person is susceptible to diphtheria.

   This test is not given routinely to children under eight years of age, as nearly all babies and young children are susceptible. It is advisable to give a Schick test to all older individuals above eight years of age before giving them diphtheria toxoid. Likewise, Schick tests are occasionally given some months after the preventive immunizations have been administered, in order to find out whether they have been effective, although recent studies indicate that giving a single injection of plain or alum-precipitated toxoid would be more logical than giving the test.

   The Schick test is performed by injecting a small measured amount of diluted diphtheria toxin into (not beneath) the skin of the forearm. A positive Schick test is characterized by an area of redness about the point of injection. This reaction reaches its height at about seventy-two hours, but if time permits it should be read at the end of five to seven days. A positive Schick reaction indicates that the person so reacting is susceptible to diphtheria, and such a person should be protected against diphtheria by being immunized against this disease. When no reaction occurs following the Schick test, a person is said to have a negative Schick test. Such a person has some immunity against diphtheria and usually does not need to be immunized.

2. **The Tuberculin test** is a simple method to determine which persons have had tubercle bacilli (the germs which cause tuberculosis) in their bodies.

A drop of tuberculin is injected into (not beneath) the skin of the forearm. If the area of injection becomes red, swollen, and slightly brownish by the end of forty-eight hours, it is called a positive tuberculin reaction. This means that the person so reacting has at some time been "infected" with tubercle bacilli. This does NOT mean that the person has the "disease" tuberculosis, but merely that he at some time has come in contact with the germs that cause the disease. Therefore, such a person should be examined further by having an X-ray film of his chest made to determine whether the germs have been overcome or whether they are multiplying and producing the disease tuberculosis. If the X-ray film shows suspicious shadows, the person should have a complete physical examination to determine his exact condition.

If a person tested has never come in contact with tubercle bacilli, the injected tuberculin will be absorbed in the same way water would, and there will be no red or swollen area at the point of injection at the end of forty-eight hours. Such a person is said to be negative to tuberculin. This probably means that the person has not had tuberculosis infection, and consequently no further examination is needed at this time. However, such a person may at a later date come in

contact with tubercle bacilli and therefore should have a tuberculin test every year between the ages of fifteen and thirty years, to be sure he continues to be free from these germs. If the test once becomes positive, further tuberculin testing is unnecessary, since the test generally remains positive for many years.

3. **Serological test for syphilis**

The disease syphilis produces certain characteristic changes in the blood which can be determined by examining the blood serum. This test is seldom made during routine school examinations, but may be employed in special instances. It is well for every adult to have such a test occasionally in order to be sure he is free from syphilis; in fact, this test should be a part of every well-conducted periodic health examination. In Colorado it is required by law for persons expecting to marry, for expectant mothers, and for food-handlers.

Serological tests should be performed only by State approved laboratories. The blood for making these tests is usually secured by withdrawing a small amount of blood from a vein in the forearm, after thorough cleansing of the area through which the needle must pass. The blood is then placed in a tube supplied by the approved laboratory and sent to the laboratory for examination. A positive report is presumptive evidence of the presence of syphilis,

but, before a diagnosis can be made, the person should consult his family physician for a complete examination that would include a recheck serological test.

# INFORMATION REGARDING COMMON COMMUNICABLE DISEASES*

Supplement to section on "The Ill Child," page 23.

The State Division of Public Health does not recommend the closing of schools on the outbreak of any of the communicable diseases, except possibly in rural areas where the children's homes are widely separated and where the most common point of contact is the school. A much closer watch may be kept upon the children when they are in school and under the care of an observant teacher or, better still, under the care of a public health nurse.

## Definitions of Terms

1. **Bacteria.** Bacteria are tiny forms of life which can be seen only through a microscope. While some bacteria are helpful to human life, others cause disease. There are three general types:
   a. Bacillus, or a rod-shaped bacterium
   b. Coccus, or a spherical-shaped bacterium
   c. Spirillum, or a "cork-screw" type bacterium
2. **Carrier.** A person who, without symptoms of a communicable disease, harbors and disseminates the specific germs. As distinct from a carrier, the term "infected person" is used to mean a person in whose tissues the causative germ of a communicable disease is lodged and produces symptoms.

*For more detailed information, refer to "Communicable Disease Control—Laws, Rules and Regulations," Colorado State Board of Health, 1942 Revision.

3. **Cleaning.** This term signifies the removal of organic matter on which and in which bacteria may find favorable conditions for prolonging life and virulence, and also the removal of bacteria adherent to surfaces. This may be done by scrubbing and washing, with such agents as hot water, soap, or washing soda.

4. **Contact.** A "contact" is a person known to have been sufficiently near an infected person, so that presumably he has been exposed directly by infectious material, or indirectly by articles freshly soiled with such material.

5. **Disinfection.** By this is meant the destroying of the vitality of disease-producing germs by chemical or physical means.

   a. CONCURRENT DISINFECTION is the application of disinfection immediately after the discharge of infectious material from the body of an infected person, or after the soiling of articles with infectious discharges before there has been any personal contact with such discharges or articles.

   b. TERMINAL DISINFECTION is the process of disinfecting the personal clothing and immediate physical environment of the patient at the time when the patient is no longer a source of infection.

6. **Droplet infection.** This expression is used to describe infection by means of droplets of infectious

material that have been sprayed into the air by persons when laughing, talking, coughing, or sneezing.

7. **Filterable virus.** The term "filterable virus," as defining the cause of certain diseases, is used to describe living elements of some kind that are so small they go through porcelain filters and cannot be seen with a common microscope. The term is as definite a description of a disease-producing agent as is the statement that the typhoid bacillus causes typhoid fever. It means that the cause of the disease is known, even though present knowledge does not permit further precision in distinguishing among filterable viruses except by reference to the name of the disease produced by each.

8. **Fumigation.** By fumigation is meant a process by which insects and rodents, such as bedbugs, roaches, mosquitoes, body lice, rats, and mice, are exterminated by the employment of gaseous agents.

   Modern medical research does NOT advocate fumigation as a method of disinfection after communicable diseases, even after diseases like scarlet fever or diphtheria. Soap and water, sunshine, and fresh air are more effective. Books may be stood on end, open, so the leaves are spread apart, and allowed to air for several days in direct sunlight.

9. **Incubation period.** This is the time that elapses between exposure and the first signs of the disease.

10. **Immunity.** Immunity is the power which living organisms possess that enables them to resist infection.

11. **Isolation and quarantine.** In view of the ambiguous and inaccurate uses made of these words, it has seemed best to adopt arbitrarily the word "isolation" as meaning the separation of persons suffering from a communicable disease or of carriers of disease germs, from other persons in such places and under such conditions as will prevent the direct or indirect spread of the infectious agent to susceptible persons; and the word "quarantine," meaning the limitation of freedom of movement of persons who have been exposed to communicable disease. The period of time is determined by the local health officer.

## CHICKENPOX

1. **Typical symptoms.** Slight fever; mild constitutional symptoms; skin eruptions that look like small water blisters which last three or four days and leave scabs —more abundant on the covered than on the exposed parts of the body. Eruption may be the first symptom noticed. The disease is most communicable during early stages of eruption.

2. **Cause.** A specific filterable virus probably present in sores of the skin and in the respiratory tract.

3. **Method of spread.** Directly from person to person, indirectly through articles freshly soiled by discharges from an infected person.

4. **Incubation period.** Two to three weeks may elapse from time of exposure until symptoms appear.

5. **Period of communicability.** Starting just before the beginning of symptoms until about ten days after the appearance of the eruption.

6. **Common complications.** Skin eruptions may become infected with other germs.

7. **Control measures:**

   a. Exclusion of the child from school and from contact with persons who have not had the disease. Concurrent disinfection of articles soiled by discharges from lesions, and terminal disinfection by thorough cleaning.

   b. Susceptible children under sixteen in the infected household may be allowed to continue in school but must be sent home at first sign of illness. Restrictions unnecessary for immune children or adults.

   c. When there have been cases of chickenpox in school, children should be observed for at least three weeks after occurrence of the last case.

   d. Since mild cases of smallpox may be mistaken for chickenpox by untrained persons, all suspected cases in persons over fifteen years of age should be investigated. During an epidemic of smallpox every case of chickenpox should be investigated.

8. **Immunity.** Persons who have had the disease once seldom have it again. Susceptibility is practical universal among those who have not previously had the disease.

## DIPHTHERIA

1. **Typical symptoms.** Sore or inflamed throat; fever; enlarged glands in the neck; patches of grayish-white membrane on the tonsils, throat, or in the nose.

2. **Cause.** Diphtheria bacillus, most commonly found in discharges from the nose and throat of diphtheria patients or of persons who are carriers of the disease.

3. **Method of spread.** Directly by personal contact or by droplet infection, indirectly by articles freshly soiled with such discharges, or through infected milk or milk products.

4. **Incubation period.** Usually two to five days, sometimes longer.

5. **Period of communicability.** Variable, until virulent diphtheria bacilli have disappeared. Isolation of the patient is maintained fourteen days and thereafter until two cultures from the nose and throat, taken not less than twenty-four hours apart, fail to show the presence of virulent diphtheria bacilli.

6. **Common complications.** Paralysis of heart and throat muscles.

7. **Control measures:**

   a. Isolation of the patient in a quarantined home or in a contagion hospital. Control of persons who are contacts, according to instructions of local health officer.

   b. Concurrent disinfection of all articles which have been in contact with the patient and all articles

soiled by discharges of the patient. Terminal disinfection by thorough cleaning, including airing and sunning of the sick room.

c. Discovery and control of diphtheria carriers.

d. Daily inspection of all pupils for at least seven days after the occurrence of the last case, when a case or suspected case of diphtheria has occurred in the school.

e. Pasteurization of milk supplies.

8. **Immunity:**

a. Immunization with diphtheria toxoid of all young children to prevent the disease.*

b. Recovery from an attack of the disease, especially if diphtheria antitoxin is used as part of the treatment, is not necessarily followed by immunity.

c. Older children and adults often develop immunity as a result of accidental contact with persons who carry the diphtheria bacillus. This is more common in large cities than in rural or small-town populations.

## INFANTILE PARALYSIS

(Poliomyelitis)

1. **Typical symptoms.** Moderate fever; usually headache and gastro-intestinal symptoms, such as vomiting and constipation; drowsiness alternating with irritability; stiffness of neck or spine; or child's body may

*Refer to "Immunization," Appendix, page 167.

be unusually sensitive to touch. Weakness or paralysis of muscles often follows. Most cases occur in late summer and fall.

2. **Cause.** A specific filterable virus. The source of infection is unknown, but healthy carriers are thought to be common.

3. **Method of spread.** Unknown.

4. **Incubation period.** Commonly, seven to fourteen days.

5. **Period of communicability.** Not definitely known, but apparently a few days before first symptoms of the disease and the first week or two of the disease—possibly much longer in a few cases.

6. **Common complications.** Paralysis of affected parts of the body.

7. **Control measures:**

   a. Isolation of patient in a quarantined home or contagion hospital for two weeks from onset. Concurrent disinfection of nose and throat and bowel discharges and articles soiled therewith. Terminal disinfection by cleaning.

   b. Quarantine of exposed children of the household and of adults whose vocation brings them into contact with children or who are food handlers, for fourteen days from last exposure to a recognized case.

   c. General warning to public of the prevalence of the disease, description of typical symptoms and

necessity for diagnosis and medical care, particularly for bed rest of patients and protection of their muscles. Protection of children against unnecessary contact with people outside the home and avoidance of unnecessary physical strain in children during an epidemic. Isolation of all children with fever until diagnosis is made.

8. **Immunity.** There is no method of immunization. As a rule, children are more susceptible than adults. An attack of the disease usually gives permanent immunity. Some persons have very mild cases of the disease that may be mistaken for gastro-intestinal conditions. A large percentage of adults seem to have developed some immunity to the disease.

## INFLUENZA

1. **Typical symptoms.** There may be difficulty in differentiating between a severe cold and influenza unless the disease is in epidemic form. Usually there is a sudden onset, with fever of one to seven days' duration, cold in head, sore throat and bronchitis, aches and pains in back and limbs, and excessive weakness not usually characteristic of a cold.

2. **Cause.** A filterable virus, probably in discharges from throat and nose of infected persons.

3. **Method of spread.** Believed to be by direct contact, by droplet infection, or by articles freshly soiled with discharges of nose and throat of infected persons.

4. **Incubation period.** Short, usually twenty-four to seventy-two hours.

5. **Period of communicability.** Undetermined.

6. **Common complications.** Pneumonia; pus in the chest; extreme weakness, persisting for weeks; meningitis; heart disease.

7. **Control measures:**

   a. Patient should be isolated during the acute stage of the disease. Concurrent disinfection of discharges from the nose and throat of the patient. No terminal disinfection.

   b. During epidemics, efforts should be made to reduce opportunities for direct contact infection, as in crowded halls, stores, and street cars. The closing of the public, parochial, and private schools has not been effective in checking the spread of infection. Personal health habits and community hygiene measures should be actively stressed.

## MEASLES

1. **Typical symptoms.** Fever; signs of a cold in eyes, nose, and throat; cough; and an early eruption in the mouth. Later, a red rash, followed by a little scaling of the skin.

2. **Cause.** A specific filterable virus found in mouth and nose secretions of infected individuals.

3. **Method of spread.** Directly from person to person and by droplet infection, indirectly through articles

freshly soiled with nose and mouth discharges of an infected person. It is the most easily spread of all communicable diseases.

4. **Incubation period.** About eight to ten days from date of exposure to onset of fever; twelve to fourteen days to appearance of rash.

5. **Period of communicability.** During the period of symptoms of a cold and until abnormal discharges have stopped. From at least four days before and until five days after appearance of the rash. Most communicable before the appearance of the rash.

6. **Common complications.** Pneumonia, chronic inflammation of the eyes, ears, and air passages.

7. **Control measures:**

   a. Isolation of patient during period of communicability. Concurrent disinfection of all articles soiled with secretions of the nose and throat; terminal disinfection by thorough cleaning.

   b. Daily examination of exposed susceptible persons. When the disease is very prevalent and in large communities, quarantine of exposed susceptible children is impracticable and of no value. In sparsely settled rural areas, exclusion of exposed susceptible school children and teachers from school until fourteen days from last exposure may be justifiable. If date of the only exposure is reasonably certain, an exposed susceptible child of school age may be allowed to attend school for the first seven days of the incubation period.

c. Schools should not be closed nor classes discontinued, but daily observation of the children by physician or nurse should be provided for.

d. Education as to special danger of exposing young children to those exhibiting fever and symptoms of a cold, especially when measles is epidemic.

8. **Immunity.** All persons must be considered susceptible until they have had the disease. An attack of measles usually gives permanent immunity. Children under three years of age in families where cases of measles occur should be protected with convalescent serum or whole adult blood, since death is more likely to occur from complicating pneumonia in this age group. Measles is a more serious disease than is commonly supposed.

## GERMAN MEASLES

(Sometimes called "Three-Day Measles")

1. **Typical symptoms.** Slight signs of a cold for one or two days, followed by a red rash on face and body. There is usually enlargement of some of the lymph nodes. The rash may resemble that of scarlet fever or of measles. The disease is highly communicable in the early stages and usually occurs in epidemics.

2. **Cause.** The germ is unknown, but the disease is spread by secretions of the mouth and nose.

3. **Method of spread.** By direct contact with the patient or with articles freshly soiled with the discharges from the nose or throat of the patient.

4. **Incubation period.** From fourteen to twenty-one days, usually about sixteen days.

5. **Period of communicability.** From onset of catarrhal symptoms for at least four days, but not more than seven.

6. **Common complications.** None, usually.

7. **Control measures:**

   a. Separation of the patient from non-immune children and exclusion of the patient from school and public places for seven days. Concurrent disinfection of discharge from nose and throat and articles soiled therewith. Terminal disinfection by thorough cleaning.

   b. Persons having symptoms of the disease should be seen by a physician, since German measles may be confused with scarlet fever during its early stages.

   c. When cases of the disease have occurred in a school, children should be observed for at least three weeks after the development of the last case.

8. **Immunity.** An attack of the disease usually confers permanent immunity. Most young children are susceptible. German measles is a much milder disease than the disease known as "measles," and immunity from one does not protect against the other.

## MUMPS

1. **Typical symptoms.** Fever; swelling, pain, and tenderness of the glands in front of and below the ears.
2. **Cause.** A specific filterable virus found in secretions of the mouth and possibly of the nose.
3. **Method of spread.** By direct contact with an infected person or with articles freshly soiled with nose and throat discharges of such persons.
4. **Incubation period.** From twelve to twenty-six days, usually about eighteen days.
5. **Period of communicability.** Unknown, but probably from one or two days before swelling occurs and until swelling is gone.
6. **Common complications.** Inflammation of sex glands in older children and adults.
7. **Control measures:**
   a. Isolation of patient until the glands have returned to normal size. Concurrent disinfection of all articles soiled with the nose and throat discharges of the patient. No terminal disinfection.
   b. Exposed susceptible persons in the home or at school should be regularly inspected for the onset of symptoms for three weeks from the date of last exposure.
   c. Persons who have had the disease once generally acquire immunity, but second attacks of the disease are not rare.

## "PINK EYE"

"Pink Eye" is NOT a specific disease of the eye. It is a term commonly used to describe acute infections of the eye, some of which may be communicable. Epidemics seem to occur most often in spring and autumn. Children who have a discharge from the eyes, especially the type that causes the lids to stick together while sleeping or that leaves dry crusts on the lids, should be suspected of having a communicable eye condition. This discharge may be accompanied by redness of the eyes and lining of the eyelids, and there may be some itching. Such children should be excluded from school until a diagnosis is made.

Communicable eye diseases of this type usually develop rapidly, in from one to three days after exposure. The child should be isolated until all inflammation and discharge is gone. Care should be used to see that separate towels and other articles are used and that all articles soiled with the discharge are disinfected.

## PNEUMONIA (LOBAR)

There are two general types of pneumonia—lobar and bronchial. Children generally have bronchial pneumonia, but may have the lobar type.

1. **Typical symptoms.** Sudden onset with chill followed by fever; often pain in the chest; usually cough and difficulty in breathing. In children, vomiting and sometimes convulsions may occur at the onset.

2. **Cause.** Various disease-producing bacteria commonly found in discharges from the mouth, nose, and throat of infected persons or carriers.

3. **Method of spread.** By direct contact with infected person or carrier or with articles freshly soiled with discharges of the nose and throat of such persons; possibly from infected dust of rooms occupied by such persons.

4. **Incubation period.** Not well determined, but probably one to three days.

5. **Period of communicability.** Unknown; presumably until discharges of the mouth and nose no longer carry the causative germ in abundant or virulent form.

6. **Common complications.** Pleurisy; pus in chest cavity; heart disease.

7. **Control measures:**

   a. Isolation of the patient during course of disease. Concurrent disinfection of discharges from the nose and throat of the patient. Terminal disinfection by thorough cleaning and airing.

   b. Other individuals should avoid contact with cases and avoid undue exposure in wet or cold weather. The general resistance should be conserved by good personal hygiene habits.

8. **Immunity.** Most people are susceptible. This may be increased by wet, cold, and exposure; by bodily and mental fatigue; and by alcoholism.

## SCARLET FEVER

(Scarletina)

1. **Typical symptoms.** Sudden onset with nausea, vomiting, fever, and sore throat; red rash on second or third day of onset. Sometimes cases occur without a rash or are so mild that the disease is not recognized. During the second or third week after onset, there is usually some peeling of the skin.

2. **Cause.** A streptococcus found in discharges from the nose, throat, ears, abscesses, or wound surfaces of sick or convalescent patients. Carriers may also spread the disease.

3. **Method of spread.** Directly by contact with an infected person or carrier, and by droplet infection; indirectly by articles freshly soiled or used by such persons; also, by contaminated milk or milk products.

4. **Incubation period.** Two to seven days, usually three to four days.

5. **Period of communicability.** Usually until three weeks after the disease starts, and until all abnormal discharges have ceased and all open wounds have healed.

6. **Common complications.** Inflammation of the middle ear; damage to heart and kidneys.

7. **Control measures:**

   a. Isolation of patient in a quarantined home or contagion hospital. Concurrent disinfection of the discharges and of all articles that have been in

contact with the patient. Terminal disinfection by thorough cleaning.

b. Quarantine of contacts and regulation of sale of milk and food products from premises, according to directions of local health officer.

c. Daily examination of exposed children for a week after last exposure. Schools should not be closed but rather daily inspection of the children and teachers by a physician or nurse should be provided.

d. Pasteurization of all milk.

8. **Immunity.** Most persons develop immunity after having the disease, although second attacks may occur. There are methods of immunization that may be used, according to the discretion of the family physician.

## SEPTIC SORE THROAT

("Strep" Throat)

1. **Typical symptoms.** Acute sore throat appearing in epidemic outbreaks. The onset is likely to be abrupt with a chill, high temperature, and vomiting.

2. **Cause.** A streptococcus—usually found in the nose and throat of humans or in a cow's udder that has been infected by a milker.

3. **Method of spread.** Direct or indirect human contact, including droplet infection; consumption of raw milk contaminated by a case or carrier, or from an infected udder.

4. **Incubation period.** One to three days.

5. **Period of communicability.** In man, presumably as long as there are any signs of the disease. The carrier stage may follow convalescence and persist for some time. In the cow, during the continuance of discharge of the streptococci in the milk.

6. **Common complications.** Infected and enlarged glands of the neck; middle ear infection; arthritis; heart disease; kidney disease.

7. **Control measures:**

   a. Isolation of the patient during course of the disease and convalescence, and particularly exclusion of the patient from participation in the production or handling of milk or milk products.

   b. Concurrent disinfection of articles soiled with discharges from the nose and throat of the patient. Terminal disinfection by thorough cleaning.

   c. Pasteurization of all milk.

8. **Immunity.** Immunity is uncertain, if it occurs at all.

## SKIN DISEASES

Common skin infections constitute one of the most annoying health problems for teachers. It is often difficult to obtain a correct diagnosis, as parents may be reluctant to take their children to a physician. They may be sensitive or resentful when told that their children have one of these skin conditions, but the teacher can explain

that there is no disgrace in having such a condition; the only disgrace is in allowing it to remain.

A. **IMPETIGO.**

1. **Typical symptoms.** Sores on the face (especially at corners of the mouth, nose, and ears), on the hands, or sometimes widely scattered over the body. Sores may resemble "cold sores" or "fever blisters" at first, grow larger, contain pus, and become covered with a crust.

2. **Cause.** A variety of cocci, found in the sores.

3. **Method of spread.** By direct contact with an infected person and indirectly by contact with articles recently soiled by discharges from the sores of infected persons. The infection is easily spread from one place to another on the patient's body by scratching. Any scratch, cut, or break in the skin surface, including areas from which adhesive tape has been removed, may become infected.

4. **Incubation period.** Two to five days.

5. **Period of communicability.** Until sores are completely healed. The disease is very communicable.

6. **Common complications.** Secondary infections of the skin and spread to other parts of the body.

7. **Control measures:**

   a. The child should be excluded from school and from contact with other children until the sores are healed. A few days of vigorous treatment is sufficient in most cases.

   b. Concurrent disinfection of discharges from lesions and dressings, or other articles soiled therewith. No terminal disinfection.

   c. Personal cleanliness, especially the avoidance of common use of toilet articles among children. Prompt treatment to prevent extension to new sites and to shorten period of communicability.

8. **Immunity.** Immunity does not follow an attack of the disease. There is no method of immunization.

B. **RINGWORM.**

1. **Typical symptoms.** Skin eruptions on the scalp, the body, the groin, or the feet (athlete's foot), depending upon which type of infection it is.

2. **Cause.** Various types of fungi found in eruptions on scalp or bodies of infected persons; or infected hairs or scales shed by individuals and lodged in damp places; or on articles of clothing, toilet articles, bathtubs, showers, and swimming pools.

3. **Method of spread.** Directly by skin-to-skin contact with lesions of infected persons, and indirectly by articles of wearing apparel or by surfaces contaminated by scalings or hair from the eruptions.

4. **Incubation period.** Undetermined.

5. **Period of communicability.** Until the eruptions are healed.

6. **Common complications.** None, but very persistent and often long drawn out.

7. **Control measures:**

   a. Children with marked cases of the disease should be excluded from privileges in gymnasium and swimming pools. Exclusion from school may be desirable in cases of ringworm of the scalp. There are too many carriers of foot ringworm to make control of them at all practicable.

   b. Concurrent disinfection. Cleanliness of body and underclothes; cotton socks may be boiled in case of infection of the feet; shoes may be exposed to formaldehyde. No terminal disinfection.

   c. Avoid contact with persons having the disease. Avoid walking in bare feet in public places, around swimming pools, or shower baths. Keep the skin clean and dry, particularly between the toes.

8. **Immunity.** None. Susceptibility is general, but children are more apt to have body, face, and head forms of the disease; adults, ringworm of the feet.

C. **SCABIES (ITCH).**

1. **Typical symptoms.** Small itching eruption usually appears first between fingers, later on arms, neck, and body. Eruptions grow larger and scabs may form. The eruption may be mistaken for eczema, poison ivy, or may be labelled as a "stomach rash" or almost anything.

2. **Cause.** The itch mite, which is found in burrows of the skin, particularly between the fingers.

3. **Method of spread.** Direct contact with infested persons; and indirectly by clothing, bedding, bathtubs, showers, or articles used by such persons.

4. **Incubation period.** Length of time for the itch mite to burrow under the skin, lay eggs, and start the itching and scratching. All of this may occur within twenty-four to forty-eight hours.

5. **Period of communicability.** Until the itch mites and the eggs are destroyed. A few days of vigorous and thorough treatment is usually sufficient.

6. **Common complications.** Skin eruptions may become infected with other germs.

7. **Control measures:**

   a. Children should be excluded from school until disinfested. Persons should be denied common recreation and bathing facilities while infested.

   b. Concurrent disinfestation of body clothing and bedding. Terminal disinfestation of underclothing and bed coverings, to be so treated by washing or dry heat as to destroy the mites and the eggs.

   c. All members of the family should be considered at the same time, to avoid reinfesting the others.

   d. Avoid contact with cases. Keep skin clean.

8. **Immunity.** This term is not appropriate to this condition. Anyone may become infested and immediately reinfested after treatment.

D. **PEDICULOSIS (LICE).**

1. **Typical symptoms.** The discovery of the adult louse on one or more of the hairy parts of the body or in the clothing, or the nits attached to hairs or to threads of clothing. Nits may at first be mistaken for particles of dandruff, because they are tiny, oval, glistening bodies attached to the hair a short distance from the scalp.

2. **Cause.** Head louse, body louse, or crab louse on the hairy parts of an infested person or, in the case of body lice, on the clothing of such a person.

3. **Method of spread.** Directly by contact with an infested person, and indirectly by contact with clothing and headgear of such persons.

4. **Incubation period.** Lice hatch in a week and reach sexual maturity in two weeks.

5. **Period of communicability.** While live lice remain on the infested person or his clothing and until eggs (nits) in hair and clothing have been destroyed.

6. **Control measures:**

   a. Exclusion of the infested child from school until live lice are destroyed, and supervision until nits are removed from the hair of the head.

   b. Concurrent disinfestation includes such washing of person and treatment of body clothing and toilet articles as will destroy lice and nits.

   c. All members of the family should be treated at the same time, to avoid reinfesting each other.

7. **Immunity.** This term is not appropriate to such a condition as pediculosis. Anyone may become infested.

## SMALLPOX

1. **Typical symptoms.** One to five days of fever, chills, headache, and backache; then an eruption appears first on the face, next on the arms and legs, and then on the rest of the body.

2. **Cause.** A specific filterable virus found in eruptions of the mucous membranes and skin of infected persons.

3. **Method of spread.** Contact with persons sick with the disease and articles contaminated with discharges from the eruptions. Virus may be present in feces and urine for a brief time.

4. **Incubation period.** Eight to sixteen days; occasionally twenty-one days.

5. **Period of communicability.** From first symptoms until disappearance of all scabs and crusts.

6. **Common complications.** Infection of the skin eruptions.

7. **Control measures:**

   a. Isolation of patient in a quarantined home or preferably in a contagion hospital. Concurrent disinfection of all discharges; no article to leave the surroundings of the patient without boiling or equally effective disinfection. Terminal disinfection by thorough cleaning and disinfection of premises.

b. Quarantine of all contacts until released by the local health officer.

c. Vaccination of all persons.

8. **Immunity.** Immunity may be acquired by vaccination or following recovery from the disease.*

## TYPHOID FEVER GROUP

1. **Typical symptoms.** Headache, weakness, and continued fever; often diarrheal or other body disturbances. Rose spot eruption on the abdomen is sometimes present.

2. **Cause.** Typhoid fever: typhoid bacillus. Paratyphoid fever: paratyphoid bacillus A, B, or C. These bacilli are found in bowel discharges and urine of infected persons or of healthy carriers.

3. **Method of spread.** Conveyance of the germ by direct or indirect contact with a source of infection. Among indirect means are contaminated water, milk, shellfish, and possibly flies. Contaminated hands probably play the greatest role in conveying the germ to foods and milk.

4. **Incubation period.** Typhoid fever: from three to thirty-eight days, usually seven to fourteen days. Paratyphoid fever: four to ten days, average seven days.

5. **Period of communicability.** From the appearance of symptoms, throughout the illness and relapses, dur-

*Refer to Appendix, page 167.

ing convalescence, and until repeated bacteriological examination of discharges shows absence of the infecting organism.

6. **Common complications.** Hemorrhage from break in the intestinal wall; bronchitis, and pneumonia.

7. **Control measures:**

   a. Isolation of the patient in a fly-proof room, preferably in a hospital. Concurrent disinfection of all bowel and urinary discharges and articles soiled with them. Terminal disinfection by thorough cleaning.

   b. No quarantine, except restrictions for handlers of food.

   c. Protection and purification of public water supplies and pasteurization of public milk supplies.

   d. Sanitary disposal of human excreta. Prevention of fly breeding.

   e. Supervision of food supplies and food handlers.

   f. Discovery and supervision of carriers. Instruction of convalescents and carriers in personal hygiene, particularly as to sanitary disposal of fecal waste and handwashing after use of toilet.

8. **Immunity.** Immunity is usually acquired after recovery from the disease. Immunization with vaccine gives protection for about two years.* All susceptible persons in the family or household of a typhoid patient should be immunized. Also, immunization by

*Refer to Appendix, page 170.

vaccination should be available to persons who live in areas where there are cases of typhoid fever; who are subject to unusual exposure by reason of occupation or travel; or who are in military forces, camps, or institutions.

## VINCENT'S INFECTION

(Trench Mouth)

Vincent's infection may be divided into two types—acute and chronic. In children, the acute type, with its rapid and painful onset, is most common.

1. **Typical symptoms.** Inflammatory disease of the mucous membranes, most commonly those of the mouth. Gums are painful, deep red in color, bleed easily, develop well-defined crater-like ulcers covered by a white membrane; fever and general indisposition; difficulty in eating and swallowing; salivation with disagreeable foul odor.

2. **Cause.** Fusiform bacilli and Vincent's spirochetes found in discharges from lesions of infected persons or carriers.

3. **Method of spread.** Directly by contact with infected persons or carriers and by articles freshly soiled therewith, such as kissing, using infected drinking cups, improperly sanitized utensils, and other personal articles.

4. **Incubation period.** Variable and undetermined.

5. **Period of communicability.** Not determined but probably as long as the infecting organism is predominant in the mouth.

6. **Associated conditions.** Often associated with malnutrition, dirty mouth, pyorrhea, irregularity of teeth, broken-down teeth, rough margins of dental fillings and crowns, and ill-fitting dentures.

7. **Control measures:**

   a. Exclusion from school or common eating facilities unless under active treatment. Concurrent disinfection of all discharges from mouth and nose.

   b. Sterilization of eating and drinking utensils.

   c. Inspection of mouths and throats of other children or adults associated with the patient at home or in school.

   d. Encouragement of oral hygiene; correction of abnormal or diseased conditions of teeth and gums.

   e. Facilities for preventive oral treatment of children.

8. **Immunity.** None. Susceptibility probably general if predisposing conditions are present. Not uncommon among persons of low nutrition and neglected oral hygiene; seemingly more prevalent in children and younger adults than in older adults.

## WHOOPING COUGH

1. **Typical symptoms.** Begins as a cold, with an irritating cough. The cough gradually becomes paroxysmal, usually within one to two weeks. The paroxysms

are characterized by a repeated series of violent coughs, each series consisting of many coughs without intervening inhalation and often, but not always, followed by the characteristic inspiratory whoop. Paroxysms frequently end with vomiting of mucus.

2. **Cause.** Pertussis bacillus found in discharges from the air passages of infected persons.

3. **Method of spread.** Contact with an infected person or with articles freshly soiled with discharges of such person.

4. **Incubation period.** Seven to ten days and not exceeding sixteen days.

5. **Period of communicability.** Particularly communicable in the early catarrhal period before the typical cough makes a diagnosis possible. After the typical paroxysms start, the communicable period continues for about three weeks. The communicable stage must be considered to extend from seven days after exposure to an infected individual, until three weeks after onset of typical paroxysms.

6. **Common complications.** Bronchitis; broncho-pneumonia.

7. **Control measures:**

   a. Separation of the patient from susceptible children and exclusion from school and public places as long as deemed necessary by the local health officer.

b. Concurrent disinfection of discharges from the nose and throat and of articles soiled therewith. Terminal disinfection by thorough cleaning.

c. Quarantine limited to exclusion of non-immune children from school and public gatherings for ten days from date of last exposure. Immune children may be released by the health officer to attend school. No limitation of adults.

8. **Immunity.** One attack confers a definite and prolonged immunity, although second attacks do occur. Most persons are susceptible, children under five years of age being most susceptible. A brief immunity may be given to young children by convalescent serum or whole blood of adults. Immunization by use of prophylactic vaccination is recommended by some physicians.

It is important that people understand the dangerous nature of this disease, especially in children under three years of age.

## WEIGHING AND MEASURING

Supplement to section on "Nutrition," page 39.

A. **Equipment Needed**

1. SCALES

   a. Every school should have scales for weighing the children. In schools having a very small enrollment, the bathroom type scales might be adequate. Larger schools usually need heavier spring or balance type scales.

   b. Scales must be accurate. They should be tested regularly.

2. MEASURING DEVICES

   a. Two wooden yardsticks or a carpenter's folding wooden rule are preferable. A new cloth or paper tape measure may be used if care is taken to prevent slackening or stretching of the tape when it is being fastened to the wall. The metal rod attached to scales may be used if it is accurate.

   b. Yardsticks or tapelines should be fastened accurately and permanently to a wall or wood work, where there is enough unobstructed surface so the child can stand up against it.

c. A chalk box, stiff-covered book, or other right-angled surface.

3. PAPERS—newspapers or other kinds

B. **Intervals**

1. Plan for regular weighing periods, at least three times during the school year. The first weighing should be done when school opens or as soon afterwards as possible. Some schools weigh children again at the end of each month, or at each report card period.

2. Heights are usually measured only two or possibly three times a year—at the beginning and near the end of the school terms.

C. **Procedures**

1. WEIGHING

a. See that the scales are correctly adjusted and balanced.

b. Have the children remove outdoor clothing and heavy articles from pockets. Weigh them with shoes on, as that is the way they are weighed outside of school, and it helps to prevent the spread of foot infections. Since the type of shoes worn by children vary with seasons, note should be taken of shoes worn each time.

c. Have child stand in the middle of the scale platform.

d. Take weight to the nearest half-pound.

e. Record weight on health records. If children are weighed frequently, a weight graph may be kept by each child to show his own progress. Some schools provide space on the report card for recording weights.

2. MEASURING HEIGHT

a. Shoes should be removed. Place several chairs near the measuring scale and cover area around chairs and rod with clean newspapers.

b. A square piece of newspaper should be placed on the floor at the measuring rod, a clean piece for each child, as a precaution to prevent the spread of skin diseases.

c. Have child stand as tall as possible with heels together; feet flat on the floor; heels, shoulders, and head against the measuring scale; arms at side and head up.

d. Take height with an accurate right angle. If a chalk box is used, place it firmly on the child's head and squarely against the measuring scale. If a book is used, it should be held in a perpendicular position so that one edge is firmly

placed against the wall and another edge on the child's head. Hold the book or box in place while the child steps to one side and the height is read.

e. Take height to nearest quarter-inch.

f. Record height on classroom or individual health record.

# TOOTHBRUSHES, DENTIFRICES, AND CORRECT TECHNIQUE FOR BRUSHING TEETH

Supplement to section on "Dental Health," page 53.

## TOOTHBRUSHES

Every child should have his own toothbrush. If possible, he should have two or three so that each one could dry for twenty-four hours after use. This will add much to the life of the toothbrush. Toothbrushes that are wide, large, or have fancy curves or tufts should be avoided. The type of toothbrush that dental research finds best has a small head with well-spaced tufts of medium-stiff bristles.

Care of the Toothbrush

1. Soak a new toothbrush in salt water for an hour before use. Put one teaspoonful of table salt in a glass of cold water. This soaking will help soften, clean, and "set" the bristles so that they will not injure the gums.
2. Rinse the toothbrush in clean cold water after using it. Shake it well and put it in a clean light

place—sunlight, if possible. Hang it up, or place it in a glass with the bristle end up so that it can dry easily in the open air. Do not allow one toothbrush to touch other toothbrushes.

3. Cover the wet bristles with powdered salt about once a week and leave the brush to dry. Salt purifies it, toughens it, and helps destroy any harmful mouth bacteria that might breed upon it.
4. Replace a brush whose bristles begin to break, fall out, or become matted.

## DENTIFRICES

Dentifrices are mixtures which merely aid the toothbrush in mechanically cleaning the accessible surfaces of the teeth. They do not possess curative or prophylactic virtues, cannot cure decay or pyorrhea, and cannot insure social success. To be sure a dentifrice is safe to use, one should either ask his dentist or look for the "Seal of Acceptance" of the Council on Dental Therapeutics of the American Dental Association.

A Simple, Inexpensive Yet Excellent Tooth Powder

1. Use finely-powdered table salt, common baking soda, or a combination of the two in the proportion of one part salt to three parts soda.
2. Flavor this tooth powder if desired. To eight ounces of the tooth powder add about three drops of oil of peppermint, spearmint, wintergreen, cloves, or cinnamon. To flavor the powder evenly,

add the oil to the dry powder and shake well in a box, or pass it through a sieve or flour sifter.

3. Keep the tooth powder in some type of container with a tight-fitting top to prevent the loss of flavor by evaporation and exposure to the open air.

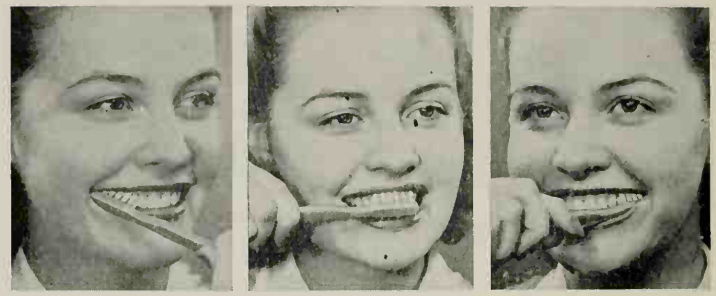
## CORRECT TECHNIQUE FOR BRUSHING TEETH

The teeth ought to be brushed after each meal but since it is often impracticable to brush them at noon, thorough brushing after breakfast and before going to bed should never be neglected.

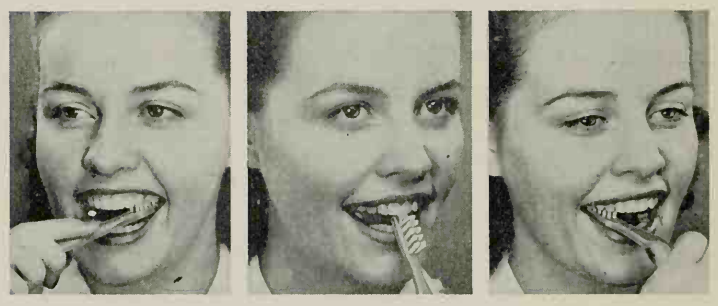
A Recommended Method*

1. Brush the teeth for at least three minutes, always in definite order, starting at one place and carefully continuing around the mouth. Do not skip from the upper mouth to the lower or from one side to the other.
2. Brush the teeth only in the proper direction—that is, toward the biting edges of the teeth, or in the direction in which they grow. Brush the UPPER TEETH DOWNWARD and the LOWER TEETH UPWARD. Be sure to brush both the gums and teeth. Never brush the teeth crosswise as this injures the soft tissues and the teeth.
3. Clean the chewing surfaces of the teeth by firmly forcing the bristles straight down into the pits and

*Charts showing this toothbrush technique, recommended by the American Dental Association, may be borrowed from the Colorado State Division of Public Health.

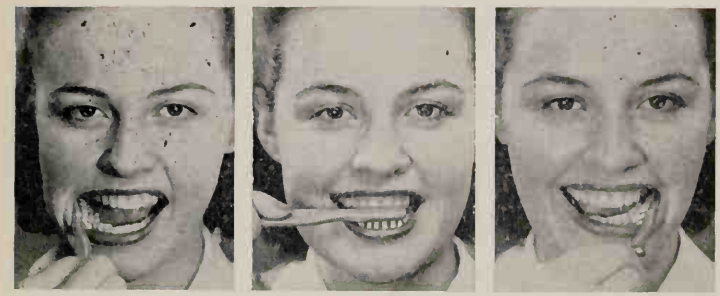


OUTSIDE UPPER

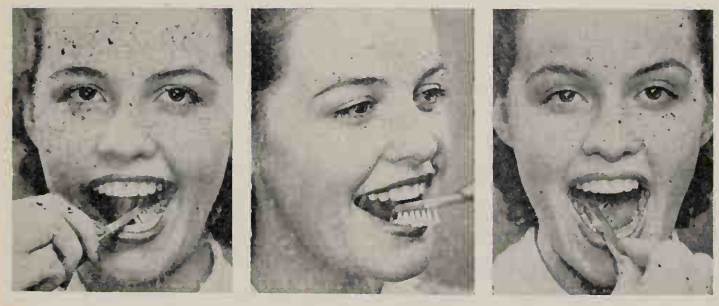


INSIDE UPPER

**Suggested Toothbrush Technique**



OUTSIDE LOWER



INSIDE LOWER

**Suggested Toothbrush Technique**
Continued

crevices and vibrating the brush forward, backward, and sideways.

4. Brush the tongue lightly when it is coated.

5. Rinse the mouth thoroughly by forcing warm water between the teeth to remove loose food particles and to aid in keeping the tongue, gums, and teeth clean and the breath free from odors.

# VISION TESTING

Supplement to section on "Eye Health," page 65.

A. **Equipment Needed**

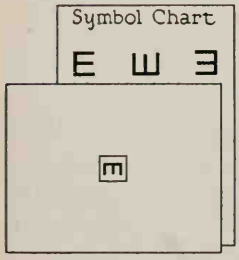
1. SNELLEN SYMBOL E TEST CHART

   a. A standard linen chart is available for approximately 25c from either the American Medical Association, 535 North Dearborn Street, Chicago, or the National Society for the Prevention of Blindness, 1790 Broadway, New York. Public health nurses and larger schools usually have these linen charts.

   b. Smaller printed paper charts are furnished without cost by the Colorado State Division of Public Health.

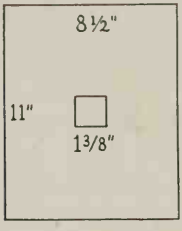
   c. Thumb tacks, adhesive or scotch cellulose tape can be used to hold the chart in place on the wall.

2. WINDOW CARDS to show single symbols on the chart.




   a. Select a dull-finish white card for use in daylight illumination. Soft gray may be used in artificial illumination. A card of 8½"x11" size is convenient.

   b. In order to cover the part of the chart not in use, a small square should be cut out of




the card near the middle. If the square is 1⅜" in size, it can be used to cover symbols on the 20/50 line and down through the 20/20 line. Symbols larger than those on the 20/50 line may be pointed out for children who are not able to see the smaller ones.

3. FOLDED PAPER TO COVER EYE

   a. A folded clean sheet of paper, approximately 2½"x3" in size when folded, is used for covering one eye at a time. Children may be shown how to fold their own papers.

   b. Each child should have HIS OWN PAPER, to avoid infection from a contaminated paper.

4. TAPE MEASURE OR YARDSTICK to be used for measuring distance between chart and place where child is to stand.

5. CHALK for marking distance

6. LIGHT METER

   a. Although the test may be done without a light meter, it is preferable to use one, as intensity of illumination affects results of the test. In this way, the amount of light on the chart may be properly controlled.

b. Light meters can often be borrowed from the public health nurse's office or from the local office of an electric power company. Light meters may be purchased from several different companies, prices usually ranging from $11.00 to $18.00 according to the type selected.

B. **Preparations to be made**

1. SETTING UP THE EQUIPMENT

a. Select the place for the chart to obtain the following:

(1) Twenty-foot distance. Chart is drawn to scale for use at twenty feet.

(2) Adequate light on chart

(a) If the light meter is used, ten foot-candles of light, evenly diffused without glare, is most desirable on the chart. More light than this tends to offset defects and lessen chances of discovering them. Glare, shadow or insufficient light handicap even those with normal vision. Children may help to adjust window shades.

(b) If no light meter is available, try to place chart on a wall where there is good light, without glare.

(3) Freedom from bright light in the child's field of vision. Light might come from

windows, open doors, or glare from shiny surfaces.

(4) Reasonable degree of quiet. This is essential if the child's confidence and concentration are to be secured.

b. Measure on the floor the exact twenty-foot distance from the wall on which the chart is placed. One or two of the children may be asked to do this as an activity in preparing for the test.

c. Place chart so that child's eye will be level with twenty-foot line. The child should stand or sit exactly in front of the chart. It is preferable to have the child sit during the test, as he is usually more relaxed and at ease. The height of the chart may be raised or lowered with varying heights of children.

2. INSTRUCTING THE CHILDREN

The whole class can be instructed at one time in the use of the chart. This helps timid children to overcome their shyness while becoming familiar with the test.

a. Secure the cooperation of each child. If the child has confidence, the test will be more accurate. The experience should be a pleasant one.

b. See that each child understands the procedure.
(1) Using the largest letters on the chart, show children, with the hand, which way the

shafts of the "E" point. Then, show letters on other lines with the window card. Take plenty of time for this explanation. The testing may be played like a game with the younger children.

(2) Young children may show with their hands which way the "E" points; older children may prefer to state direction, using the words "down," "up," "right," or "left."

c. Show the child how to cover one eye with a clean paper while the other is being tested.

(1) The paper may be held by the child or, in the case of small children, by an older child or an assistant.

(2) The paper is held at the edge so that it rests obliquely across the nose. The paper should NOT be pressed against the eyeball. Be sure to emphasize that BOTH eyes should be kept open during the test.

(3) Paper used to cover eyes of one child may be contaminated and therefore should be destroyed immediately.

C. **Procedure to be used**

1. TEST THE RIGHT EYE FIRST, then test the left eye. A standardized routine avoids confusion and facilitates recording.

2. If child wears glasses, TEST FIRST WITH GLASSES, then without. This gives child opportunity to do his best on first test.

3. BEGIN WITH THE FIFTY-FOOT LINE and proceed with the test to include the twenty-foot line. It is not necessary to test below the twenty-foot line. With children suspected of low vision, begin at the top of the chart.

4. USE WINDOW CARD TO EXPOSE ONE SYMBOL AT A TIME, keeping unused part of the chart covered. This concentrates the child's attention on one symbol and prevents his memorizing the lines.

5. MOVE PROMPTLY AND RHYTHMICALLY FROM ONE SYMBOL TO ANOTHER at a speed with which the child seems to keep pace. Show one vertical and one horizontal symbol on a line, and move to the next line. Use all four symbols of the twenty-foot line or the last line that is read correctly. Reading three out of four symbols is usually considered evidence that the child sees that line satisfactorily, unless there are symptoms of strain.

6. IF THE CHILD SEEMS TO TIRE, have him close his eyes, look out the window, or do something else and be tested later. Encourage him to do his best, but avoid permitting him to strain his eyes.

7. IF THE CHILD IS STRAINING TO SEE, do not allow him to go on. Record the last line correctly read and the evidence of strain observed. Example

—"Eyes water when being tested." Signs to be watched for include:

a. Forward thrusting of the head

b. Tilting the head

c. Eyes filling with tears

d. Frowning or scowling

e. Puckering the face

f. Blinking the eyes

8. RETESTS MAY BE NEEDED for young children, for children whose tests seem to vary greatly from tests of previous years, or for those who complain of eye trouble. If available, the large linen chart should be used for retesting children who are unable to read the 20/20 line or who have other eye symptoms.

D. **Data to be recorded**

1. RECORD TEST RESULTS IN ORDER GIVEN, for right eye and then left eye, as if it were a fraction.

Numerator—distance between child and chart, usually twenty feet.

Denominator—last line correctly read by child. This should not be interpreted as per cent of vision. 20/20—normal vision, reads twenty-foot line at twenty feet. 20/30—reads at twenty feet, line which should be read at thirty feet. This is not 2/3 or 66 2/3% vision but according to statistics actually represents 91.4% visual efficiency.

2. RECORD ALL OTHER FINDINGS, including eye conditions or behavior observed in classroom. The general health of the child should also be noted, as this is so closely related to eye difficulties.

3. FOR CHILDREN WEARING GLASSES, record the following:
   a. Vision for each eye, first with glasses, then without
   b. How long glasses have been worn
   c. Date glasses were last checked or changed
   d. Name and address of person who fitted glasses
   e. Whether glasses are worn continuously or not

4. IF CHILD SEEMS TO HAVE A DEFECT, inquire to see if he has ever had eyes examined by oculist, and make notation.

## TESTING FOR COLOR BLINDNESS

Color testing is an important factor for vocational guidance but is not so important as an index of need for eye examination. Naming colors is not a standardized color test but is an activity that might be interesting to children.

Slips of colored construction paper can be prepared for children to use in testing each other. The colors can be named by the class before starting so that a child will not make a mistake because he didn't know the name of a color.

# HEARING TESTING

Supplement to section on "Ear Health," page 79.

A. **Audiometer Test**

1. Two general types of audiometers are available for school use, a pure-tone audiometer for individual tests, and a phonograph audiometer for group tests. Information concerning various kinds and models of audiometers which may be purchased by schools can be secured from the American Society for the Hard of Hearing, 1537 Thirty-fifth Street, N. W., Washington, D. C., or from the State Division of Public Health Nursing.

2. For accuracy and efficiency, it is usually better for schools to designate certain persons to do audiometer testing. The technician designated to do the testing may be a lay person who has been trained for this work.

3. The Director of Special Education of the State Department of Education will give audiometer tests to any children suspected of having hearing difficulties.

4. On the basis of studies which have been made,* in which the audiometer was used for group testing, it is suggested that schools

   a. Test all children at least three times during their elementary school life if it can be arranged.

*"Solving School Health Problems—The Astoria Demonstration Study," D. B. Nyswander, 1942.

b. Administer the test two or three times to children showing loss of hearing on the first test. One of the retests should preferably be given on a later day.

c. Select for further testing and follow-up only those children who are found on the retests to have fifteen decibels or more hearing loss in the worse ear. Refer these children directly to the school nurse for follow-up.†

B. **Sperry Test**

1. SPERRY TESTER

a. A Sperry tester can usually be borrowed from the local public health nurse or from the State Division of Public Health Nursing.

b. Sperry testers may be purchased from V. Mueller and Company, Ogden Avenue, Chicago, or from E. B. Meyrowitz Surgical Instrument Company, 520 Fifth Avenue, New York City. The cost is around four or five dollars.

2. TESTING PROCEDURE

a. From the bench or seat, mark on the floor distances of 10", 20", 30", and 60". Be sure the room is absolutely quiet.

b. Seat the child. Have him close his eyes and cover one ear with his hand.

†Refer to section on Community Resources, page 103.

c. Instruct the child to tell you when he hears the ticking sound. Let him hear the tick of the tester so that he will recognize the sound it produces.

d. Stand at one side, facing in the same direction as the child, holding the Sperry tester in the palm of the hand directly opposite to the ear being tested, at a distance of sixty inches or more from the child.

The tester should always be held with the same grasp and never near an object that can reflect sound, such as the side wall of the room. It is best to have the tester fully wound, as the intensity of the tick is somewhat dependent upon the winding.

e. Turn the tester on and off to see if the child hears the ticking. Be sure no other watch is in the vicinity to confuse him. If the child has normal hearing he will hear the ticking sixty inches from his ear. If not, move within the sixty-inch range until he responds fully to the sound. Then measure and record the distance from the ear to the location of the tester.

f. After testing one ear, turn the child about and repeat for the other ear.

3. INTERPRETATION OF TEST RESULTS

a. When the tester can first be heard at

30 " from the ear, there is approximately 12% hearing loss

20 " from the ear, there is approximately 16% hearing loss

10 " from the ear, there is approximately 20% hearing loss

4½" from the ear, there is approximately 25% hearing loss

1 " from the ear, there is approximately 35% hearing loss

b. Usually children who cannot hear the tester at a distance of thirty inches should be referred for follow-up care.

C. **Whisper Test**

1. TESTING PROCEDURE

a. Give the test in a room that is not less than twenty-five feet long. The room should be absolutely quiet. In such a room the average whisper can be heard easily at twenty-five feet.

b. Mark off a twenty-five foot distance and draw chalk lines at intervals of one foot along this distance.

c. Place a bench or revolving chair at one end of the marked area.

d. Seat the child; have him close his eyes, cover one ear with his hand, and repeat each whispered word that he hears.

e. Use the same loudness of whisper regardless of the distance from the child. In order to insure

using the same degree of loudness of the whisper, let out all the air that will leave the lungs easily on expiration and whisper with the remaining air which can be forced out. Enunciate clearly and slowly, projecting the whisper forward to the lips. A person who has a cold should not give whisper tests, as his own hearing may not be as good as usual. Likewise, a person who is hard of hearing to any extent may not be able to give reliable tests, because his voice will be raised in equal amount to his hearing loss.

f. Use either numbers or nouns of a single syllable but do not mix them. Omit nine and seven from the digits. If nouns are used, tell the children in advance all those that will be whispered. Select names of familiar objects such as car, house, door, ball. Use the same test words in varying order for all pupils in order to permit accurate, comparative results.

g. Stand one foot from the child, at his side, facing the ear being tested. If he repeats the whispered words correctly, step back a few feet and whisper different words. Continue stepping back until the point is found at which the child hears several words and beyond which he does not hear. Measure this distance and record it. When changing position wait a moment before presenting the whisper to avoid the child's use of your movement as a clue to respond.

2. INTERPETATION OF TEST

   a. Test all children first and record their hearing distances. Use as a norm the distance at which over 75% of the children could hear. Retest all pupils who did not hear as well as the norm. This normal distance may be different in each building because of environmental noise and difference in whisper of the person giving the test.

   b. If, after a test, the child still does not hear as well as half of the normal hearing distance, it might be well to observe the child for other signs of hearing loss and possibly refer him for follow-up care.

## ESSENTIAL FIRST AID SUPPLIES

Supplement to section on "Accident Prevention and First Aid," page 137.

First aid supplies should be readily available in every school and should include the following items:

1. Book on "First Aid"

*2. Individually wrapped, ready-made sterile dressings on adhesive tape, in ½ or 1-inch widths

3. Sterile gauze compresses of assorted sizes, including 3-inch squares, in individual packages

4. Roller gauze bandages, in 1 and 2-inch widths

5. Adhesive tape, in at least a 2-inch width, which may be cut to suit all purposes

*6. Sterile applicators (absorbent cotton wrapped around one end of toothpicks or applicator sticks) for use as swabs

7. Absorbent cotton

8. Rubbing alcohol, preferably a 70% solution

*9. Antiseptic, for application to skin, such as tincture of merthiolate, metaphen, or other similar trade product. Tincture of iodine may be used as an antiseptic on the skin with proper precautions, if its use is approved by the school physician. When iodine is used, more than one application should not be made on the same area of skin, and adhesive tape should not be applied directly over the iodine.

*Items which might be kept in the first aid box in each classroom.

Since a tincture is a solution with an alcoholic base, care should be taken to keep the bottle tightly corked to prevent evaporation of alcohol and resulting concentration of the remaining solution.

10. Tube of tannic acid jelly
11. Aromatic spirits of ammonia
12. Paper cups
13. Blunt-end scissors
14. Muslin bandages:

    Triangle bandage for slings, tourniquet, holding dressings in place, or other uses
    Roller muslin bandage, 4 inches wide and 10 yards long, for supporting splints
15. Safety pins.
16. Snake bite kit:

    In areas infested with rattlesnakes, a small snake bite kit including a sharp blade for cutting the wound, a suction cup, and a tourniquet should be kept on hand. Commercially prepared snake bite kits may be purchased.

## ALCOHOL AND NARCOTICS

Colorado law requires that the nature of alcoholic drinks and narcotics shall be taught and special instruction be given as to their effects upon the human system.* Teachers should know the characteristics of alcohol and narcotics, methods of identification, effects resulting from their usage, and difficulties of overcoming habits once they are formed. These facts should be taught entirely from the scientific viewpoint, avoiding the emotional approach. It is important particularly in reference to alcohol, that the teacher have proper information and a reasonable point of view.

In Colorado, Marihuana is a major narcotic problem of which the schools should be particularly aware. The problem is difficult for law-enforcement agents to control because Marihuana grows readily when planted in this region, and it is often found in back yards or between rows of field crops. It is usually sold in the form of cigarettes made from dried leaves of the plant. Smoking of Marihuana results in paralysis of the higher nerve centers, thus making its users unaccountable for their conduct. Reactions may be violent, depending upon the individual and the amount of drug consumed. The drug produces an intoxication in which the sense of time and space is entirely lost. In addition, a feeling of well-being and of super-strength is experienced. Users remember these pleasant and exciting sensations and develop an appetite for the drug. Insanity may result from its continued usage.

*Colorado School Laws—1941—Sections 575, 576.

The Bureau of Narcotics, U. S. Treasury Department, Washington, D. C., has an excellent illustrated pamphlet on the identification of the Marihuana plant, called "Marihuana, Its Identification." This bulletin may be secured from the regional office of this bureau, located in Denver, or from the Superintendent of Documents, Government Printing Office, Washington, D. C. The bureau also has available printed and mimeographed material on other narcotic drugs, including such information as the history, uses and dangers, and the laws governing the use and distribution of narcotics.

Books and pamphlets on alcohol and narcotics may be borrowed from the State Department of Education. Information and literature regarding narcotics may also be secured from the Food and Drug Division of the State Division of Public Health.

## ADDITIONAL SOURCES OF SCHOOL HEALTH EDUCATION MATERIALS

### General References

"Health Education," Joint Committee on Health Problems, National Education Association and American Medical Association. N. E. A., 1201 Sixteenth St., N. W., Washington, D. C. Second revised edition, 1941. 368 p. $1.50.

"Health in Schools," American Association of School Administrators, 1942 Yearbook. N. E. A. (See above for address). 541 p. $2.00.

"Solving School Health Problems," Dorothy B. Nyswander, The Commonwealth Fund, 41 East 57th Street, New York, N. Y., 1942. 377 p. $2.00.

"Be Healthy," Katherine B. Crisp, J. P. Lippincott Co., Philadelphia, 1938. 544 p. $1.56.

"Physical Fitness Through Health Education," U. S. Office of Education, Washington, D. C., 1943. Victory Corps Series Pamphlet Number 3. 98 p. 20 cents.

"Hygeia, the Health Magazine," American Medical Association, 535 N. Dearborn Street, Chicago, Illinois. Published monthly, single copy 25 cents. Subscription $2.50.

"Journal of School Health," American School Health Association, 3335 Main Street, Buffalo 14, N. Y. Published ten months a year, $1.75.

"Journal of Health and Physical Education," American Association for Health, Physical Education and Recreation, 1201 Sixteenth St., N. W., Washington, D. C.

Published monthly. Single copy 35 cents. Subscription $2.00.

"Public Health Nursing," National Organization for Public Health Nursing, 1790 Broadway, New York, N. Y. 12 issues $3.00. Single copy 35 cents.

"Consumer's Guide," U. S. Department of Agriculture, Washington, D. C., U. S. Government Printing Office. 50 cents a year.

Books, periodicals, moving picture films and other materials on various phases of health, Library of the Colorado State Division of Public Health, State Office Building, Denver 2.

Books, periodicals and pamphlets dealing with various school health problems. State Library, Extension Division, 320 State Capitol, Denver 2. (A Division of the State Department of Education.)

**Some Commercially-Sponsored Materials**

Insurance companies, such as:

Metropolitan Life Insurance Company.
Literature on a wide range of health subjects, moving picture films, and other materials for teachers.

John Hancock Life Conservation Service, Boston, Massachusetts.

Prudential Insurance Company of America, Newark, N. J.

The Travelers Insurance Company, Hartford, Conn. Materials on automobile driving and all phases of safety education.

Food concerns, such as:

National Dairy Council, 111 N. Canal St., Chicago, Ill.

Pamphlets, posters, moving picture films and other educational materials.

Evaporated Milk Association, 307 N. Michigan Ave., Chicago, Ill.
Booklets on milk, school lunches and general nutrition.

National Live Stock and Meat Board, Department of Nutrition, 407 So. Dearborn St., Chicago, Illinois. Excellent colored charts and leaflets showing food values.

Wheat Flour Institute, 309 W. Jackson Blvd., Chicago, Ill.

H. J. Heinz Company, Pittsburgh, Pa. Charts, manual, and other nutritional materials.

Dental products companies, such as:

Lactona, Inc., St. Paul, Minn. Pamphlets, charts and other materials, especially "Dental Health Education Charts," 50 cents per set of six.

Good Teeth Council for Children, Inc., 400 N. Michigan Blvd., Chicago. Booklets on dental health, some of which are written for children.

Church and Dwight Co., Inc., 70 Pine St., New York, N. Y. Booklets on dental care and other uses of soda.

Some other concerns:

General Electric Company, Neela Park, Cleveland, Ohio. Literature on lighting and vision.

Better Vision Institute, R.C.A. Building, New York, N. Y. Local public service companies.

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Words that occur on almost every page, such as "children," "school," "teacher," etc., have been omitted from this index.

No words are included in the index from the sections on "Suggested References and Materials" and "General References."


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